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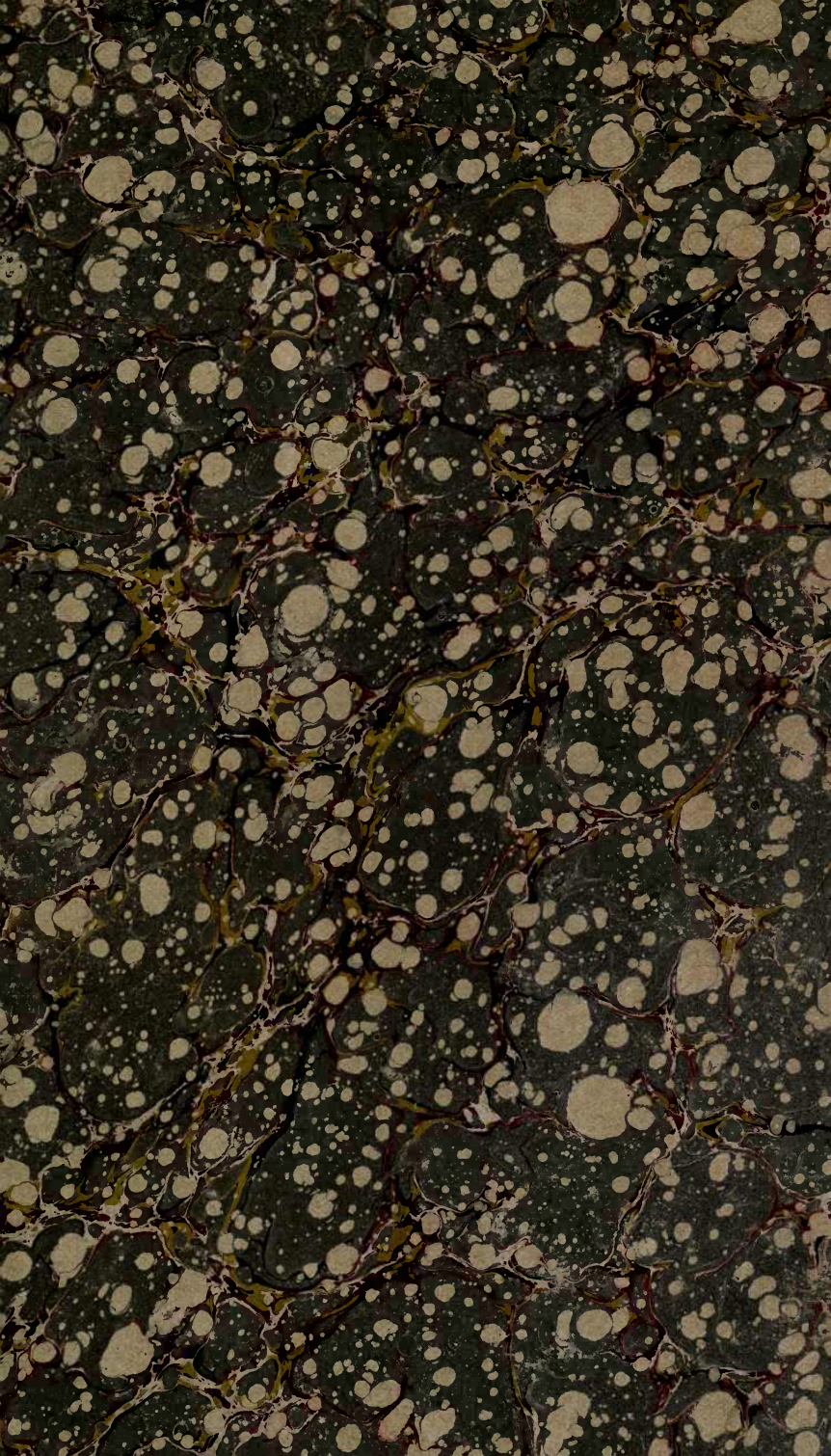

MANUAL

OF

CONCHOLOGY;

STRUCTURAL AND SYSTEMATIC.

WITH ILLUSTRATIONS OF THE SPECIES.

BY GEORGE W. TRYON, JR.

CONSERVATOR OF THE CONCHOLOGICAL SECTION OF THE ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA.

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VOL. V.

MARGINELLIDÆ, OLIVIDÆ, COLUMBELLIDÆ.

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THE three extensive families of mollusks monographed in this volume of the Manual of Conchology, include several of the most beautiful of the marine genera. The material upon the study of which I have based my text is unusually ample, enabling me to make numerous satisfactory adjustments of the synonymy, and to illustrate many variations in addition to the typical forms of the species. It is hoped that the figures will enable naturalists to identify their specimens with facility and certainty. Exception has been taken to some of the figures heretofore published in this work, on the ground that they are uncharacteristic in drawing and coloring: these illustrations are faithful copies of the original (or typical) figures, such as I almost invariably give, if published; and they are supplemented, whenever it is possible to do so, by better illustrations of the same species.

The next volume of the Manual will be devoted to the important group of the Toxifera—including Cancellaria, Terebra, Conus, Pleurotoma. Towards its completion I again ask the kindly aid of authors and collectors, who may possess unfigured or critical species.

January, 1883. G. W. T., JR.

See what a lovely shell,
Small and pure as a pearl,
Lying close to my foot,
Frail, but a work divine,
Made so fairly well
With delicate spire and whorl.
How exquisitely minute,
A miracle of design!

What is it?—a learned man
Could give it a clumsy name.
Let him name it who can,
The beauty would be the same.

TENNYSON.

Oh what an endless work have I in hand,
To count the sea's abundant progeny!

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MANUAL OF CONCHOLOGY.

Family MARGINELLIDÆ.

Animal having tentacles arising close together, the eyes on the lower portion or near the middle of the tentacles; mantle with expanded side-lobes, covering the back of the shell, as in *Cypræa;* siphon elongate, simple at base; foot large, truncate in front, produced behind. Operculum usually none.

Shell porcellanous, polished, usually smooth, or with longitudinal ribs; spire short or immersed, body-whorl ample; aperture nearly the length of the shell, the outer lip usually with thickened margin, smooth or dentated within, the inner lip with several distinct plaits on the columella.

Dentition. In possessing rhachidian teeth, without laterals, the lingual armature of *Marginella* resembles that of *Voluta*, whilst the shape of the plate and its dentated edge are very similar to that of Mitridæ; lateral teeth being added, however, in the latter family. A single species of *Erato* (the only one examined), possesses laterals like *Trivia* in Cyprædæ, and upon this ground the genus has been placed in that family by some systematists (Pl. 2, fig. 7).

The expanded mantle-lobes, covering the shell—which thus receives a polished surface, and is devoid of epidermis—immediately suggest relationship with the cowries (*Cypræa*), but more particularly with the Olives and Ancillaria, on the one side; whilst the presence and position of the columellar plaits, as well as the form of many of the species, on the other side, approximates the family to *Mitra* and *Voluta*.

Stimpson created a family Cystiscidæ for a little *Marginella*-like shell dredged by him near the Cape of Good Hope. The animal has an elongated, narrow foot; the head is oblong,

depressed, bifurcated in front to form short, triangular, flattened and horizontal tentacles, and the eyes are at the lateral margins of the head a little behind the bases of these tentacles; mentum as broad as the head, but not extending beyond the tips of the tentacles. The dentition (Pl. 2, fig. 11) is essentially that of *Marginella*. Notwithstanding these differences of the animal, I agree with Mr. Redfield, who has included *Cystiscus Capensis* in his "Catalogue of Marginella." It is very probable that when more specimens of the soft parts shall have been examined the result will be the discovery of many divergences from the structure of the larger species which have furnished the family diagnosis. Besides the *Cystiscus*, other instances of variation from the normal type of Marginellidæ have been recently recorded. M. de Maltzan has collected at Goree, coast of Senegambia, several specimens of *Marginella glabella* containing the animal. Some of these are provided with a well-developed operculum, whilst others (as diagnosed for the family) have none.* Messrs. Crosse and Fischer having examined the lingual dentition of one of these operculated individuals, were surprised to find it differ from that of all other Marginellæ hitherto known, in possessing lateral teeth, resembling Buccinum.† Maltzan has proposed a new genus, *Pseudomarginella*, for the operculated shells; which he supposes to inhabit rocky shores, whilst the others live on sand, at 15 to 30 fathoms; although the evidence he presents of this difference of habit is insufficient. Two Pseudomarginellæ are described, one of which has an unguiculate operculum, that of the other being lamellar, like Purpura; they both possess a narrow foot, with a small gland, and in one of them the tentacles are short and broad, in the other short and round. All these characters differ much from the broad foot, with large gland and the long tentacles of the typical Marginella—yet the shells are indistinguishable from that of the typical *M. glabella*.

Messrs. H. and A. Adams, in their "Genera of Recent Mollusca," include the genus *Pachybathron*, Gaskoin, in this family, but its closer relationship with Cassididæ is very evident. The

* On the irregularity of development of opercula in Volutharpa, see this Manual, vol. iii, p. 198.

† Jour. de Conch., 3d ser., xx, 375, 1880.

genus *Ringicula*, Deshayes, has also been thought to resemble *Marginella* in its shell, but this resemblance is a superficial one only, and recent studies of the animal have confirmed its conchological approximation to Actæon.*

Synopsis of Genera.

ERATO, Risso. Shell obovate, polished; spire short, conical, distinct; aperture linear; outer lip without varix, but thickened towards the middle, denticulate within; columella with distinct plaits at the fore-part. Dentition,† Pl. 2, fig. 7.

Subgenus ERATOPSIS, Hœrnes and Auinger. Shell granular-tuberculate, with a longitudinal sulcus on the back of the body-whorl as in *Trivia*.

MARGINELLA, Lamarck. Shell ovately oblong to subcylindrical, smooth, polished, sometimes longitudinally ribbed; spire short, conical or concealed; aperture narrow, elongated, obtuse or truncated in front; columella plicate; outer lip with a thick marginal varix, its inner margin smooth or crenulated. Dentition, Pl. 2, figs. 8, 10.

Subgenus VOLVARIA, Lam. Shell subcylindrical, spire very short or concealed; outer lip of aperture without varix or thickening. Dentition, Pl. 2, fig. 9.

The type of Volvaria is *V. bulloides*, Lam., an eocene fossil of France and Belgium (Plate 3, fig. 28).

Genus **ERATO**, Risso.

The few recent species comprised in this group, were approximated to *Cypræa*, *Voluta*, *Columbella* and *Marginella* by ancient authors; and in proposing their new genus *Eratopsis*, Messrs. Hœrnes and Auinger remark upon the close resemblance of its species to the *Trivia*, or more properly *Pustularia* group of Cypræidæ. The only animal of the genus that has been figured is that of the European species *E. lævis* (Pl. 4, fig. 40);

* Fischer, Jour. de Conch., 3d ser., xviii, 113; Watson, Ibid., 312.

† I figure the dentition of *Erato callosa*, Ad. and Reeve, the only species which has been examined. It is entirely unlike the normal type of *Marginella*, and approximates closely to that of *Cypræa*. A form of *Marginella glabella* has, however, been recently discovered to possess lateral teeth (*ante* p. 6). Troschel has made serious mistakes in the identification of species of which he gives the dentition, and it is possible that this is another. It will, I think, be necessary to have more evidence before allowing the position of *Erato* to be determined by the dentition. Conchologically it is certainly closely allied to *Trivia* in the Cypræidæ

it is very like *Cypræa* in external appearance, even to the filamentous processes of the mantle-lobes, and it is evident that the growth of these processes has caused an inequality in the applied surface of the lobes, sometimes forming pustules on the shell in *Eratopsis*, in precisely the same manner as in the *Pustularia* group of *Cypræa*. Reeve remarks in the introduction of the "Monograph of Erato" (Conchologia Iconica), that in *Erato*, unlike *Marginella*, the columella is not plaited from an early stage of growth, but that the denticulations are added at maturity; in other words, they are denticulations and not true plaits. If this were so, it would be another character in common with *Cypræa*, but my observation leads me to the conclusion that it is not entirely true. I find the plaits on the columella in young specimens of several species, but in addition, there is developed on the inner lip, in the adults only, a series of denticulations like *Cypræa*, and at the same period changes sometimes occur in the appearance of the plaits caused by the deposition of calcareous matter upon and between them, so that these come to resemble the denticulations situated above them. Undoubtedly *Erato*, through *Eratopsis*, conchologically connects *Marginella* with the *Trivia* group of *Cypræa*; the balance of characters seems to indicate a rather closer relationship, on the whole, with *Marginella*; but if future investigations shall show that the species of *Erato* really possess the dentition assigned to the group, then it would perhaps be better to remove it to the Triviinæ.

Erato occurs fossilized in the miocene and pliocene deposits of Europe and America, and a single species has been reported from the eocene of Texas: species have been recently characterized from the eocene and miocene of South Australia and Tasmania.

Typical or Smooth Species.

E. LACHRYMA, Gray. Pl. 4, figs. 32, 37.

Whitish, the lip faintly roseate, usually obscurely three-banded with rose-color. Length, 5 mill.

Japan (Dr. Siebold), *Australia* (Gray).

E. sulcifera, Reeve, non Gray (fig. 37), may be synonymous.

E. GUTTULA, Sowb. Pl. 4, figs. 33, 34.

Rosy white or ash-color, obscurely fasciate; narrower and more pyriform than *E. lachryma*. Length, 5 mill.

Mauritius.

Dr. Weinkauff considers this a *Marginella*.

E. SANDWICENSIS, Pease. Pl. 4, fig. 35.

Pale rosy white, two-banded; narrower and thinner than *E. guttula*, the bands distinct, the lip narrower and not so elevated. Length, 4 mill.

Sandwich Isles.

E. PELLUCIDA, Reeve. Pl. 4, fig. 36.

Pyriformly globose, transparent white, shining; whorls slopingly angled round the upper part; aperture narrow, lip swollen, varicose. Length, 3 mill.

Bombay.

Is probably a young shell, and may = *E. Sandwicensis*.

E. CALLOSA, Ad. and Reeve. Pl. 4, figs. 38, 39; Pl. 2, fig. 7.

Yellowish or rosy white; whorls swollen around the upper part; aperture-margin thick, running up the spire. Length, 7 mill.

China Sea; Japan (Lischke).

E. LÆVIS, Donovan. Pl. 4, figs. 40, 41.

Whitish, or tinged with yellow or roseate; more angular and not so thick as *E. callosa*, and the outer lip is not so elevated or angular above. Length, 8 mill.

Great Britain, sandy ground from 12 to 85 fathoms.
Mediterranean, on coral and madrepore, 8 to 55 fms.

Plentiful in the European tertiaries.

Jeffreys cites a var. *oblonga*, pure white, more elongated, and compressed in front. The animal, says this author, is very lively and active, a great beauty, and by no means bashful. When on the march it carries the branchial tube in an upturned position. One pair, having crawled out of the water in a glass jar, coupled for seven or eight hours.

E. MAUGERIÆ, Gray. Pl. 4, figs. 42, 43.

Gray or livid, polished; smaller, wider and more angular above than *E. lævis*. Length, 5–6 mill.

West Indies; foss l in the tertiary of *England*.

E. Cypræoides, C. B. Adams, an unfigured species, is probably identical.

E. ANGISTOMA, Sowb. Pl. 4, fig. 44.

Swollen, smooth, brownish white. Length, 4 mill.

East Indies (Reeve); *Philippines* (Cuming).

The posterior elevation of the outer lip forming an angle at its extremity nearly as high as the spire, is a distinguishing feature of this little species.

E. MINUTA, Reeve. Pl. 4, fig. 45.

Subglobose, transparent, glassy, white. Length, 1·5 mill.

Philippines.

Dr. Weinkauff thinks it may be the young of the preceding species.

E. GALLINACEA, Hinds. Pl. 4, fig. 46.

Pyriform, callous and angulated posteriorly, produced and beaked anteriorly; lip stoutly swollen, conspicuously produced and sinuate at its posterior extremity; white or brownish yellow, sometimes with a superior, irregular band. Length, 6 mill.

Philippines; New Guinea; Torres Sts., Australia.

Named from its fancied resemblance to a trussed hen.

E. ANGULIFERA, Sowb. Pl. 4, fig. 47.

Shorter, wider, more obtuse than *E. gallinacea;* mouth straight and linear, outer lip very broad and thick, its posterior elevation less pointed than in *gallinacea.* Length, 2 mill.

Borneo.

E. COLUMBELLA, Menke. Pl. 4, fig. 48.

Broadly pyriform, lip elevated behind above the spire; yellowish red or roseate. Length, 7·5 mill.

Mazatlan to *Santa Barbara, Cal.*

E. marginata, Mörch, found at 100 fathoms at Bocorones I., near Panama, is probably a synonym; and I suppose that the shell described by Carpenter as *E. Maugeriæ* var. *Panamensis* is its exact equivalent. Neither of these species has been figured.

E. VITELLINA, Hinds. Pl. 4, fig. 49.

Obesely ovate, aperture rather wide; dark red, lighter on the thickened lip-margin. Length, 12 mill.

Acapulco to *Southern California.*

The largest species of the genus.

Subgenus **Eratopsis**, Hœrnes and Auinger.

This group, founded for fossils of the Austrian tertiary, will include several recent species. The first and largest species which I refer to it, is also the most doubtful one, for of the many specimens of *E. scabriuscula* before me, nearly all are smooth and polished, without a trace of a sulcus; yet others correspond with the figured examples in the various monographs in having it.

E. SCABRIUSCULA, Gray. Pl. 4, fig. 56.

Oval, rather narrow, with elevated spire; ash-pink; surface smooth and polished, or minutely granulate, with or without an obscure dorsal sulcus. Length, 10 mill.

W. Coast Central America to *Mazatlan.*

E. SULCIFERA, Gray. Pl. 4, fig. 51.

An obscure species, strikingly like the preceding, and said by Gray to come from Cape of Good Hope. Reeve has figured for it a specimen of *E. lachryma*, Gray, and gives Philippines as locality, whilst the figure in Sowerby's Thesaurus represents an entirely different form, said to occur at Panama.

E. CORRUGATA, Hinds. Pl. 4, fig. 52.

Minute, white, very finely granulated, sulcus distinct. Length, 4 mill.

Philippines, 8 fathoms, sandy mud (Cuming);
Port Jackson, Australia (Angas).

E. NANA, Duclos. Pl. 4, fig. 53.

Like *E. corrugata*, but narrower, with finer granulations. Length, 4 mill.

Red Sea (McAndrew); *Paumotus* (Pease).

E. SCHMELTZIANA, Crosse. Pl. 4, figs. 54, 55.

Narrower than *E. nana;* tinged with ash or rose, base of aperture red-tipped. Length, 3·5 mill.

Viti Islands.

Undetermined and Spurious Species.

E. VENTRICOSA, Gray. Not figured nor recognized.

E. PELLUCIDA, Tenison-Woods. = *Marginella.*

Reeve has preoccupied the specific name in *Erato.*

E. BIMACULATA, Tate. *South Australia.*

Pale primrose-yellow to yellowish white, with rufous-red around the extremity of the anterior canal and on the callous border of the hinder part of the aperture. Closely resembles *E. angulifera*, Reeve; but differs in color and in having a less angular and inflated body-whorl. Unfigured.

E. LACTEA, Hutton (= Marginella formicula, Lam.). *New Zealand.*

E. PRAYENSIS, Rochbrune. *Cape Verd Islands.*

Shell triangular, narrow in front, very thick, with obtuse spire; aperture narrow; lip reflected, very finely denticulated; columella straight, sinuous in front; color greenish. Length, 5 mill.

The figure of this species arrived too late for insertion in my plates.

Genus **MARGINELLA**, Lamarck.

The Marginellas are tropical and subtropical in distribution, a large proportion of the species inhabiting the Caribbean, West African and Indo-Pacific provinces. A species occurs doubtfully in the cretaceous; but in the eocene formation the genus is well represented, and from that and subsequent formations at least seventy-five fossil species have been characterized; from the United States, Europe and Australia.

A number of monographs and catalogues of the species have been published in recent times; the most important are:—

KIENER. Coquilles vivantes, 1834. A monograph including 56 species, with colored figures.

SOWERBY. Thesaurus Conchyliorum, i, 1846. Contains descriptions and figures of 108 species.

PETIT DE LA SAUSSAYE. Journal de Conchyliologie, ii, 1851. A list of 146 species, systematically arranged.

H. AND A. ADAMS. Genera of Recent Mollusca, i, 190, 1853. The species are divided among a number of subgenera, under which they are alphabetically enumerated, numbering 159.

REEVE. Conchologia Iconica, xv, 1865. Descriptions and figures of 159 species.

JOHN H. REDFIELD. Catalogue and synonymy of Marginellidæ. American Journal of Conchology, vi, 1870. The species are alphabetically arranged, with the synonymy and bibliography fully indicated. 211 valid species are enumerated. This may be considered the first catalogue constructed from the modern scientific standpoint. It is prepared with evident care and thoroughness, and is the result of many years' study of these interesting shells. The two monographies which have since appeared, were both written in ignorance of Mr. Redfield's labors ; a circumstance which has greatly impaired their value, besides causing some additional synonyms.

JOUSSEAUME. Monograph ; in Guerin's Revue et Magasin de Zoologie, 1875. 269 species are shortly characterized and arranged under subgenera. There are no illustrations, except of new species.

H. C. WEINKAUFF. In the Systematisches Conchilien-Cabinet of Küster, 1878. 229 species are described and carefully figured ; many of the species described as new by Dr. Jousseaume being relegated to the synonymy.

The present monograph admits as valid 230 recent species, some of which, however, being unfigured, cannot be satisfactorily determined. So far as localities are known, they have the following distribution :

Caribbean, 60 species ; Mediterranean, 5 ; West African, 45 ; South African, 11 ; Indo-Pacific, 38 ; Australo-Zealandic, 34 ; Polynesian, 10 ; Californian and Panamic, 14.

Systematists commenced at an early date to divide up the Marginellas into genera and subgenera. Lamarck, in 1801, established *Volvaria* for a fossil species of cylindrical form, with sharp outer lip ; subsequently, he included recent species of similar form, but in which the outer lip is slightly thickened. For these, Schumacher, in 1817, proposed *Hyalina*. Finally H. and A. Adams adopt *Volvaria* as a generic term, including one recent species, *V. pallida*, and for the cylindrical Marginellas with thickened lip they use the subgeneric name *Volvarina*, Hinds.

Besides *Hyalina*, Schumacher separated under the name of

Persicula, those volutiform species having a depressed or sunken spire.

Swainson, in 1840, founded a classification upon slight differences in the form of the species; extremely unsatisfactory because the change of form in the series is gradual. His genera are *Volutella*, *Persicula*, *Gibberula* and *Glabella*.

In 1844, Hinds divided the species into two groups: *Phænospira*, with elevated spire; *Cryptospira*, with hidden spire. The first corresponds with Marginella as restricted by Schumacher, the second with that author's *Persicula*. H. and A. Adams, however, have adopted *Cryptospira* as a subgenus of *Marginella*, with nearly obsolete spire, and last whorl gibbous posteriorly; following it, they place the genus *Persicula*, with depressed spire.

Petit, in 1851, divided *Marginella* into three sections:

1. With spire more or less elevated.
2. With spire depressed or hidden, sometimes umbilicated.
3. Columbelliform species, connecting with the genus *Erato*.

Gray, in 1857, admitted three genera: 1. *Porcellana* (= *Marginella*); 2. *Closia*, for *M. sarda*, and not differing essentially from 3, *Persicula*.

Messrs. H. and A. Adams, in their "Genera of Recent Mollusca," admit three genera:

Marginella, with the subgenera *Glabella*, *Prunum*, *Volutella*, and *Cryptospira*.

Persicula, with the subgenus *Gibberula*.

Volvaria, with the subgenus *Volvarina*.

J. H. Redfield, in 1870, writes:—"As to the numerous subgenera which have been proposed for species of this genus, they seem to me to be neither useful nor well grounded. In a series of two or three hundred species it is easy to select a few salient forms for subgeneric types, but much less easy to allot all the intermediate species to their proper places under such types. All the proposed subgenera are founded on the greater or less prominence of the spire, and on the degree of the thickening or reflection of the outer lip. A very slight difference of the plane of development is all that is involved in the former character, and all students of the great family Helicidæ understand well how little generic value attaches to either character.

An evidence of the invalidity of these distinctions is furnished in the inconsistencies of the catalogues in which they have been employed. The lingual dentition, when fully studied in a sufficient number of species, may yet guide us to proper groups; but even of this I am less hopeful than formerly." Mr. Redfield adopts *Volvaria*, Lamarck; but for fossil species only.

Jousseaume, in 1875, made thirteen generic divisions of the Lamarckian genus, viz.: *Marginella*, *Egouena*, *Volvarina*, *Serrata*, *Cryptospira*, *Gibberula*, *Granula*, *Bullata*, *Closia*, *Persicula*, *Volvaria*, *Balanetta*, *Canalispira*. Weinkauff, in 1878, found that the distribution of species into the above groups as made by Jousseaume was very unfortunate. In his own monograph he has not attempted any grouping according to the relationships of the species, but has presented them almost at haphazard; nevertheless in an Appendix he also proposes a classification. He thinks that the presence of a basal sinus in the aperture-margin, in many of the species, affords a good character, and accordingly presents the following scheme:

Division I. *Species with basal sinus.*

Section 1. True Marginellas.

Group a. (*Marginella*, H. & A. Ad.). *M. glabella*, Linn.

" b. (*Glabella*, H. & A. Ad.). *M. faba*, L. *M. muscaria*, Lam.

" c. (*Eratoidea*, Weink. = *Marginella* and *Egouena*, Jouss. partim).

α. With crenated lip. *M. margarita*, Kiener.

β. With smooth lip. *M. australis*, Hinds.

γ. (= *Serrata*, Jouss. ex parte). *M. serrata*, Gask.

Section 2. (*Persicula*, Gray),

Group a. (*Bullata* partim, Jouss.). *M. cornea*, Lam., *M. clandestina*, Brocc., *M. ovulum*, Sowb.

" b. (*Persicula*, Auct.). *M. persicula*, L. *M. interrupta*, Lam., *M. chrysomelina*, Redf.

" c. (*Gibberula*). *M. miliaria*, Linn.

β. (*Granula*, Jouss.). *M. minuta*, Pfr.

Section 3. Species with more or less apparent basal sinus, connecting the first and second divisions.

Group a. (*Closia*, Gray). *M. Largillierti*, Kiener, *M. sarda*, Kr.

" b. (*Cryptospira*, Adams, Jouss. ex parte). *M. quinqueplicata*, Lam. *M. elegans*, Gmel.

" c, (*Volutella*, H. and A. Adams, *Bullata* partim, Jouss.). *M. bullata*, Born, *M. dactylus*, Lam.

Dicision II. *Species without basal sinus.*

Section 1. (*Prunum*, Adams, *Egouena*, Jouss. for most part).
Group a. (*Labiatæ*). *M. labiata*, Kiener, *M. oblonga*, Swn.
" b. (*Guttatæ*). *M. guttata*, Dillw. *M. apicina*, Mke.
" c. (*Marginatæ*). *M. marginata*, Born, *M. prunum*, Gmel.

Section 2.
Group a. (*Volvaria*, H. and A. Ad.). *M. pallida*, Linn.
" b. (*Canalispira*, Jouss.). *M. Olivellæformis*, Jouss.

Section 3. (*Volvarina*, H. and A. Ad., and *Ballanetta*, Jouss.). *M. triticea*, Lam., *M. zonata*, Kiener, *M. cylindrica*, Sowb.

Weinkauff, in 1880, published an excellent synonymic catalogue of the genus, in the Jahrbücher der Deutsch. Mal. Gesell.; arranged as above.

In addition to the names enumerated above, Mr. T. A. Conrad has proposed three fossil groups, neither of which he has characterized.

Porcellanella. Type *P. bella.* Miocene. The species was not described until 1868, six years after the name was cited in connection with *Porcellanella*, and then it was placed under *Prunum*, so that Conrad abandoned this group.

Microspira, Conrad. Proposed as a subgenus of *Volutella*, Swainson, the type being *M. oviformis*, a miocene species, presenting no generic characters to distinguish it from numerous recent Marginellas. (*M. oviformis*, Conrad. Manual, vol. iv, t. 3, f. 42.)

Bulliopsis, Conrad. Type, *B. cretacea*, Conr. (Pl. 3, fig. 29).

The only objection to Weinkauff's arrangement of the species is that the basal sinus is more or less apparent in the species, so that they form no sharply defined groups: on the other hand he has the advantage over Jousseaume, Adams, etc., in clearly recognizing their artificial nature and subordinate value, by using the terms division, section and group instead of genus and subgenus. The number of species in the genus is so large that it is convenient to group them as nearly as possible in accordance with characters which appear to be common to several of the forms, and for this purpose I shall use some of the systematic terms heretofore proposed, assigning to them no value, however, except that of mere convenience.

Typical Group of M. glabella.

M. GLABELLA, Linn. Pl. 5, figs. 57, 58.

Polished, reddish or reddish brown, darker at the suture, with irregular flecks of opaque white; lip yellowish brown.

Length, 1·5–2 inches.

West Coast of Africa; Canary Islands.

Fossil in the upper tertiary of Italy. One of the most beautiful species of Marginella; occasionally the shell occurs reversed. With this species are to be united *Pseudomarginella platypus* and *leptopus*, Carriere (*ante* p. 6).

M. POUCHETI, Petit. Pl. 5, fig. 59.

Color varying from that of *M. glabella* to chestnut-brown, without the white flecks; as in that species, there are obscure indications of two bands of darker color. Length, 1 inch.

Senegal.

Possibly only a variety of *M. glabella*.

M. IRRORATA, Menke. Pl. 5, fig. 60.

Pink or yellowish, closely marked by zig-zag lines of minute white spots. Length, ·75–1 inch.

West Africa.

This also is possibly only a variety of *M. glabella*, but is smaller, less ventricose, the spire more drawn out, the spots much more numerous and closer, almost forming lines of zig-zag longitudinal direction.

M. LABIATA, Val. Pl. 5, fig. 61.

Rosy white, sometimes very faintly banded; lip-margin exteriorly orange. Length, 1–1·2 inches.

Campeachy, Yucatan, Brazil.

M. PYRULATA, Redfield. Pl. 5, fig. 69.

Like *M. labiata*, but more elongated, spire more produced. Length, 1·1 inches.

Habitat unknown.

Described by Sowerby as *M. obesa*, a name preoccupied by Redfield, who changed it as above. The species has not been identified with any living *Marginella*, since it was described, and I agree with Mr. Redfield that it is possibly a fossil form.

M. Goodallii, Sowb. Pl. 5, fig. 62.

Very ventricose, obtusely angulated behind; yellowish brown, with a few large, rounded, whitish spots. Length, 1 inch.

Senegal.

M. aurantia, Lam. Pl. 5, fig. 63.

Orange-red, darker at the sutures, where it is painted with short white streaks; surface irregularly mottled with white, often forming an interrupted band of very irregular large white spots in the middle. Length, ·8–·9 inch.

W. Africa, and *Cape Verd Is.*

Narrower than *M. irrorata*, yet in one specimen before me the zig-zag painting of that species is partially repeated.

M. pyrum, Gmelin. Pl. 5, figs. 70, 71.

Body-whorl with an obtuse shoulder; white, irregularly marked with gray or pink blotches, which are longitudinally shaded on one side by chestnut or chocolate color; outer margin of lip marked by a series of brown dots. Length, 1·25–1·5 inches.

Senegal.

M. intermedia, Sowb. (fig. 71), is probably a white or bleached specimen of this species; it is probably Kiener's var. *alba* of *nubeculata*—the name by which Lamarck designated *M. pyrum*.

M. mosaica, Sowb. Pl. 5, fig. 72.

Shell white, with faint zig-zag longitudinal stripes of gray, over which are about nine revolving series of short square spots. Length, 1 inch.

West Africa.

Very closely allied to *M. pyrum*, and may be only a variety of it, differing in the spots added to the painting of that species.

M. rosea, Lam. Pl. 5, figs. 73, 74, 75.

Smaller than *M. pyrum*, the shoulder obscure; sometimes similarly painted, but the spots and shading smaller and more numerous; occasionally the ground color is grayish pink, upon which the spots are white, with chocolate shadings; spire and shoulder frequently darker in color; lip-margin marked outside with a series of brown spots. Length, ·9–1·1 inches.

Cape of Good Hope.

A critical species; perhaps only a small var. of the preceding. I am unable to to separate *M. piperata*. Hinds (fig. 74), from it.

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M. albocincta, Sowb. (fig. 75), described from a single specimen in the Taylor collection, is also a synonym.

Reeve says of it: "I have no good opinion of this species. It appears to be a variety of *M. piperata*, in which a white band is formed by an accidental absence of coloring matter." Another synonym is probably the unfigured *M. lineato-labrum*, Gaskoin.

M. FULMINATA, Kiener. Pl. 5, fig. 78.

Whitish, with brown, zig-zag longitudinal painting.

Length, ·75 inch.

Bahia, Brazil.

I have not seen a specimen of this species.

M. PETITII, Duval. Pl. 5, figs. 76, 77.

White, longitudinally blotched and reticulated with orange-red or lilac, and numerously speckled with minute brown dots; body-whorl very obscurely shouldered. Length, 1–1·25 inches.

Senegal; Cape of Good Hope.

M. Newcombii, Reeve (fig. 77), appears to be synonymous; it is said on Cuming's authority to come from L'Agulhas Bank, Cape of Good Hope.

M. HELMATINA, Rang. Pl. 5, figs. 79, 80.

White, very minutely, irregularly speckled with light reddish brown, with two narrow bands of chestnut spots.

Length, ·7–1·4 inches.

West Africa.

Narrower and less shouldered than the preceding species. *M. Cumingiana*, Petit (fig. 80), is merely a larger, finer shell of similar form and painting.

Section **Glabella**, Swainson.

Volutiform; spire more or less conic, well developed, usually longitudinally plaited about the shoulder of the body-whorl; pillar with distinct basal plaits; lip thick, toothed or crenate, rarely smooth within.

M. BIFASCIATA, Lam. Pl. 6, figs. 81, 82.

White, more or less clouded with light brown or purple-gray, covered with small, close dots, usually in revolving series.

Length, ·9–1·25 inches.

Cape Blanco to *Gambia, W. Africa.*

The light-colored varieties (fig. 82) have been called *M. arenaria* by Mörch.

M. OBTUSA, Sowb. Pl. 6, figs. 83, 84.

Shell wide, with short conical spire; nearly the entire surface covered with longitudinal obtuse ribs; white with revolving series of light chestnut spots and broader bands of the same color upon the shoulder and near the anterior extremity; lip thickly spotted. Length, ·75–1·3 inches.

Habitat unknown, probably *W. Africa.*

The long ribs, rather a peculiar feature in the genus, are not shown in Sowerby's figure, although indicated in his description. *M. mirabilis*, Barclay (fig. 84), is a finely grown specimen.

M. ADANSONI, Kiener. Pl. 6, figs. 85, 86.

Light yellowish or orange-brown, with zig-zag longitudinal shadings, and irregular longitudinal narrow dark brown lines. Length, ·9–1·25 inches.

Senegal and *Gambia, West Africa.*

M. Bellii, Sowb. (fig. 86), described from a single specimen, and remaining unique, is probably a dwarfed individual of this species.

M. DAVISIANA, Marrat.

Shell like *M. Bellii*, Sowb., but much smaller, thicker, narrower, and lighter-colored, longitudinal lines distant; lip crenulated within, thickened without, columella four-plicate.

West Africa.

Unfigured.

M. NODATA, Hinds. Pl. 6, fig. 87.

Yellowish brown or grayish, with undulated, thin, dark chocolate longitudinal stripes, studded at intervals by spots forming revolving series. No ribs. Length, 1 inch.

Cape Blanco, W. Africa; in sand at 12–15 fathoms.

Closely allied to the following species and only distinguished from it by the spots.

M. CLERYI, Petit. Pl. 6, fig. 88.

Shell smooth; light yellowish or white, with faint gray bands, and longitudinal, undulated chocolate stripes. Length, ·9 inch.

West Africa.

M. LIMBATA, Lam. Pl. 6, fig. 89.

Pale fawn-color, with undulating longitudinal pink lines; not ribbed; outer margin of lip marked by groups of transverse chocolate-colored spots. Length, ·9–1·1 inches.

W. Africa.

Crosse describes a variety with more numerous pink lines, and another in which they are less numerous and more zig-zag in direction.

M. LITURATA, Menke.

An unfigured species, less ovate than *M. limbata*, with the angulated longitudinal lines broken up into spots.

Length, ·75 inch.

Australia.

M. ORNATA, Redfield. Pl. 6, fig. 90.

Smooth; rose or gray, with lighter bands, upon which are chocolate lines and spots; outer margin of lip also spotted.

W. Africa.

Described by Reeve as *M. vittata*, a name preoccupied by Edwards for a fossil species. Redfield changed the name in 1870 for *M. ornata;* subsequently Jousseaume, ignorant of Redfield's catalogue, called it *M. serpentina.*

M. FABA, Linn. Pl. 6, fig. 91.

Shell grayish buff, with seven to nine revolving series of distant chestnut or chocolate spots; shoulder ribbed.

Length, ·8–1·1 inches.

Senegambia.

M. lævilabris, Jousseaumè (unfigured), is probably synonymous with this species.

M. PSEUDOFABA, Sowb. Pl. 6, fig. 92.

Larger, with more angulated shoulder and more prominent costæ than *M. faba*, which it resembles in coloring; it has a turriculated spire, and is narrow in front, resembling a *Strombus* in shape. Length, 1·5 inches.

Gambia, West Africa.

M. SPLENDENS, Reeve. Pl. 6, fig. 93.

Closely longitudinally ridged; light yellowish brown, with three revolving series of curved chestnut spots, and numerous minute dots. Length, ·8–·9 inch.

West Africa.

Petit changed the name of this species to *M. Reeveana*, because *splendens* had been previously used by Grateloup for a fossil species; but as that shell proved to be synonymous with *M. eburnea*, Lam., a still earlier name, I restore *splendens*.

M. Guillaini, Petit. Pl. 6, fig. 94.

Longitudinally plicate; light violaceous, with revolving series of square brown spots. Length, 18 mill.

Abd-el Goury, near *Red Sea*.

M. musica, Hinds. Pl. 6, fig. 95.

Yellowish or light gray, with a few narrow revolving brown bands, between which are undulated grayish markings. Length, ·75 inch.

Cape Blanco, W. Africa; 12 to 15 fathoms.

M. Tyermani, Marrat, an unfigured species, appears from the description to be closely allied to, if not identical with *M. musica*.

M. diadochus, Ad. and Reeve. Pl. 6, figs, 96, 97.

Pale ash-color, tinged with orange, with black revolving lines. Length, 1 inch.

Straits of Sunda (Ad. and Reeve); *W. Africa* (Marrat).

Spire more elevated than in *M. musica*.

M. Belcheri, Hinds. Pl. 6, figs. 98, 99.

Yellowish brown, delicately penciled throughout, but especially in the middle, with longitudinal brown markings, forming revolving bands. Length, ·8 inch.

Cape Blanco; W. Africa; 12 to 15 fathoms.

The spire is more elevated than in *M. musica*, and the pattern of painting is different; yet the two are very closely allied.

M. vexillum, Redfield. Pl. 6, fig. 100.

Yellowish, with broad and narrow purple-chestnut revolving bands; lip-margin spotted with chestnut. Length, ·75 inch.

Cape Palmas, W. Africa.

M. Harpæformis, Beck. Pl. 6, fig 1.

Fulvous white, sometimes faintly banded with ash, with rows of minute brown dots, and occasionally interrupted superior and inferior brown bands. Length, ·7–·8 inch.

Senegal, W. Africa.

M. FORMICULA, Lam. Pl. 6, figs. 2, 3.

Yellowish white, tops of ribs and lip-margin ivory-white. Length, ·5–·6 inch.

So. Australia, Tasmania.

M. muscaria, Lam. (fig. 3), is somewhat larger, the lip thicker, the inner lip callous and the spire and back of the shell also callously thickened, so that the ribs become obsolete or hidden, but the series before me affords indubitable evidence that it is merely a heavy, older state of *M. formicula*. *Erato lactea*, Hutton, is identical.

M. TURBINATA, Sowb. Pl. 7, figs. 4, 5.

Yellowish white, slightly plicate on the shoulder of the body-whorl, plicæ sometimes obsolete. Length, ·35–·4 inch.

Port Jackson, Australia.

M. Volutiformis, Reeve (fig. 5 , is a smooth variation of this species, apparently.

M. CYPRÆOIDES, Tenison-Woods.

White, smooth, spire hidden by the produced and thickened outer lip. Length, 6 mill.

Tasmania.

Smaller than *M. Volutiformis*, and destitute of plaits on the shoulder. Unfigured. I have not seen this species, and therefore cannot place it with confidence. The name was used long since by Anton for a shell which has never been identified.

M. TASMANICA, Tenison-Woods. Pl. 7, fig. 6.

Translucent, milk-white, suture callous. Length, 9–10 mill.

Tasmania.

Is longer and narrower than *M. turbinata*, with a much more elevated spire, and no trace of ribs.

M. OPALINA, Stearns. Pl. 7, fig. 7.

Smooth, polished, light or dark amber-colored, sometimes obscurely darker banded; lip-margin internally crenated, strongly notched above. Length, 3·5–4 mill.

Tampa Bay, Florida.

Found on the under side of bunches of oyster-shells, near low-water mark.

M. AUREOCINCTA, Stearns. Pl. 7, fig. 8.

Smooth, sutures enameled, spire acutely elevated; white, with two amber-colored bands. Length, ·16 inch.

Long Key, W. Coast of Florida.

Figured from the unique specimen kindly loaned to me by Mr. Stearns.

M. DEFORMIS, Nevill. Pl. 7, fig. 9.

White, with two spiral chestnut bands. Length, 4·5 mill.

Ceylon.

Resembles *M. picturata*, Nevill, from Mauritius in form, but differs in coloring.

M. NEVILLI, Jousseaume. Pl. 7, figs. 15, 16.

White, smooth, shining. Length, 4 mill.

Is. of Bourbon; Mauritius.

The name adopted is substituted by Jousseaume for *M. inconspicua*, Nevill, not Sowerby. I add *M. Lantzi*, Jousseaume (fig. 16), which appears to be a younger state of the same species. The form is so nearly like that of *M. picturata*, Nevill (fig. 17), from Mauritius also, that I think it probable it will prove to be an unpainted state of that species.

M. FUSIFORMIS, Hinds. Pl. 7, figs. 10–12.

White, slightly angulated posteriorly. Length, 4 mill.

Straits of Malacca, in mud, at 17 fathoms (Hinds);
I. Bourbon (Deshayes).

M. inflexa, Sowb. (fig. 11), described without locality, is very probably synonymous, and I agree with Dr. Weinkauff that *M. unilineata*, Jousseaume, founded on the shell figured by Reeve for *M. fusiformis* (fig. 12), and which differs from the type in possessing an inferior revolving brown band, cannot be distinguished, except, perhaps, as a variety.

M. HÆMATITA, Kiener. Pl. 7, figs. 13, 14.

Smooth, or very slightly pitted, light lilac-red.

Length, ·35–·4 inch.

Porto Rico, West Indies.

M. electrum, Reeve (fig. 14), is founded on a faded specimen, in which the lip is worn smooth; I have similar specimens in the collection of *M. hæmatita* before me.

M. FESTIVA, Kiener. Pl. 7, fig. 18.

Whitish, mottled irregularly with fulvous, and encircled by three rose-colored bands. Length, ·5 inch.

East Africa (Reeve).

M. PICTURATA, Nevill. Pl. 7, fig. 17.

Cone-shaped, smooth; light chestnut, with two white zones maculated with chestnut. Length, 3·5 mill.

Mauritius.

M. SCRIPTA, Hinds. Pl. 7, fig. 19.

Yellowish white, with zig-zag longitudinal brown lines, and two bands of distant brown spots. Length, 7·5 mill.

Straits of Macassar, in coarse sand, 11 to 15 fathoms (Belcher); *Madagascar* (Petit).

M. LIFOUANA, Crosse. Pl. 7, fig. 20.

Yellowish white, sparingly longitudinally strigate with flexuous brown lines. Length, 4·5 mill.

New Caledonia.

Is possibly a young, and not well-marked specimen of *M. scripta*.

M. LUCIA, Jousseaume. Pl. 7, fig. 21.

Spire scarcely apparent, the lip advanced upon it; white, with undulating longitudinal brown lines. Length, 3 mill.

Cape Verd Islands.

Very like *M. Lifouana* in coloring, but having less prominent spire.

M. MARGARITA, Kiener. Pl. 7, figs. 22, 23.

White; columellar plaits and lip-denticulations conspicuous. Length, 6–7 mill.

West Indies.

This species is not found in the East Indies or India, as stated by Kiener and most European monographers. *M. candida*, Sowb. (fig. 23), is synonymous.

M. STRIATA, Sowb. Pl. 7, figs. 24–26.

Whitish; volutiform, longitudinally finely folded or striated; columellar plaits and lip-crenulations very prominent. Length, 4–5 mill.

West Indies; Brazil.

M. sulcata, d'Orb. (fig. 25), is probably the same species, or

at most a variety, and *M. scalaris*, Jouss. (fig. 26), is also synonymous.

M. CHAPERI, Jousseaume. Pl. 7, fig. 27.

Vitreous white, or cream-color. Length, 7 mill.

Habitat unknown.

A very doubtful species.

M. PUMILA, Redfield. Pl. 7, fig. 28.

Pallid corneous. Length, 5 mill.

Port Louis Harbor, Mauritius.

Described by A. Adams as *M. pusilla*, a name preoccupied by Edwards for a fossil species. Jousseaume, in ignorance of the substitution made by Redfield, proposed for it the name *M. Borbonica.*

M. SERRATA, Gaskoin. Pl. 7, fig. 31.

White; columella four-plaited, lip closely denticulated. Length, 7·5 mill.

Mauritius.

M. SCINTELLA, Jousseaume.

An unfigured species, from an unknown locality, and referred by its author to his genus or group *Serrata*, which includes *M. serrata*, Gaskoin. In the absence of authentic figures or specimens, it is not determinable.

M. OSTERI, Jousseaume. Pl. 7, fig. 32.

White; columella four-plaited, lip minutely denticulated. Length, 3·8 mill.

Habitat unknown.

* *Lip not denticulated.*

M. TRANSLUCIDA, Sowb. Pl. 7, figs. 29, 30; Pl. 8, fig. 35.

White. Length, 7·5 mill.

Port Jackson, Australia.

M. Strangei, Angas (fig. 30), is evidently a synonym, and I place here also *M. pygmæa*, Sowb. (fig. 35), described without locality, from a single specimen in the Bell collection. It is the *M. attenuata*, Reeve, of Weinkauff, and has also been sent to me by Australian collectors under that name, but Reeve's species is entirely different and does not belong in the same group.

M. AUSTRALIS, Hinds. Pl. 7, figs. 33, 34; Pl. 8, fig. 36.

White to orange-brown; lip and interior of aperture orange or yellowish. Length, 6–7·5 mill.

N. W. Australia; New South Wales.

M. Metcalfei, Angas (fig. 34), and *M. ochracea*, Angas (fig. 36), are juveniles of this species. Redfield and Weinkauff have placed as a synonym here *M. oryza* (= *debilis*), Pease; but that species has a crenulated lip.

M. VITREA, Hinds. Pl. 8, fig. 37.

Milk-white; much more angular and conical than *M. margarita*, Kiener. Length, 6 mill.

W. Coast of Africa.

M. INCONSPICUA, Sowb. Pl. 8, fig. 38.

Milk-white. Length, 6 mill.

West Indies (Coll. Philad. Acad.).

M. SAULIÆ, Sowb. Pl. 8, fig 39.

Pallid fulvous, with two red revolving lines. Length, 7·5 mill.

Cape Verd Is. (Weinkauff).

M. EVANIDA, Sowb. Pl. 8, fig. 40.

Milk-white. Length, 6 mill.

Lower Guinea Benguela (Weinkauff).

Dr. Weinkauff suspects that this will prove identical with *M. Sauliæ*.

M. SUAVIS, Souverbie. Pl. 8, fig. 41.

Opaline white, with three red-brown bands, the middle one broad, the others narrow. Length, 3 mill.

New Caledonia.

M. NEGLECTA, Sowb. Pl. 8, figs. 42, 43.

Reddish yellow, three-banded, with red spots.

Length, 6 mill.

Cape of Good Hope; Isle of Bourbon (Deshayes).

The above is the description of *M. rufula*, Gaskoin. *M. neglecta*, Sowb. (fig. 42), which is described as pallid fulvous, faintly trifasciate, length 6 mill., appears to me to be the same species, and has priority. Jousseaume supposed Reeve's figure of *M. neglecta* to differ specifically from Sowerby's shell, and calls the former *M. ignota*. I am not able to separate them.

Section **Prunum** (Martini), Adams.

Shell smooth, oval, spire slightly prominent; outer lip thick, unarmed, inner lip frequently forming a callous deposit; color light gray or yellowish gray, usually without distinct bands or spots; exterior lip-margin sometimes orange-brown.

M. MARGINATA, Born. Pl. 8, figs. 44–51.

Occasionally very obscurely two-banded; callous deposit on inner lip wide and thick, so that viewed from the back the shell appears margined all round, like a *Cypræa*. Length, 1 inch.

Senegal, West Africa; West Indies; Brazil.

M. marginata is a West African species which, like many others from that locality, reappears in the West Indies, where it has received the name of M. *cincta*, Kiener (fig. 46). The last has hitherto been considered distinct, but I find no characters by which to separate it. I am compelled to add to the synonymy as a minor variety, the West India *M. Storeria*, Couthouy (fig. 47), a name applied to the smaller and usually younger specimens of *M. cincta*, and in which the color is sometimes darker; also *M. amygdala*, Kiener (fig. 51), which, coming from West Africa, is similarly related to *M. marginata*. *M. crassilabrum*, Reeve (fig. 48), *M. Saulcyana*, Petit (fig. 49), *M. Loroisi*, Bernardi (fig. 50), are also synonyms. Apparently *M. marginata*, like the West Indian *M. prunum*, occurs on the West Coast of America also; at least, I have before me specimens said to come from Panama (Haagensen) and San Blas (Duff).

M. CURTA, Sowb. Pl. 8, fig. 52.

Light grayish brown, strigate with white longitudinally, or obsoletely narrowly banded with white; lip-margin externally marked with orange, lip and callus white, interior of aperture orange-color. Length, ·85–1 inch.

West Coast of South America.

A darker-colored, thinner, more swollen shell than the preceding species; peculiar in its strigations, appearing as though scratched.

M. LABROSA, Redfield. Pl. 8, figs. 53, 54.

Yellowish white, lip-margin and callus white.

Length, 10–12 mill.

West Indies.

First described by Sowerby as *M. crassilabrum*, a name preoccupied by both Lea and Conrad for fossil species, and therefore changed as above; subsequently Jousseaume, ignorant of Redfield's work, called it *M. Leai*. Dr. Weinkauff confounds *M. crassilabrum*, Sowerby, with *M. crassilabrum*, Reeve—the latter a synonym of *M. marginata*, Born.

M. GIBBOSA, Jousseaume. Pl. 8, figs, 55, 56.

More gibbous than *M. labrosa*, the columella with six or seven plications. Length, 12 mill.

Habitat unknown.

Differs somewhat in form from the last species, and in having more than four columellar folds—yet, I doubt its distinctness.

M. KEENII, Marrat. Pl. 8, fig. 57.

Color orange-buff, somewhat translucent; columella four-plaited; outer lip thickened, smooth within. Length, 12 mill.

So. Africa.

I am unacquainted with this species.

M. PULCHRA, Gray. Pl. 5, figs. 67, 68.

Yellowish flesh-color, with two narrow faint red bands. Length, 1 inch.

West Indies.

Larger than *M. Olivæformis*, the aperture conspicuously channeled behind, the bands of color narrower and more regular. Appears to connect the foregoing W. African group with that of *M. prunum*, of the West Indies. *M. Hondurasensis*, Reeve (fig. 68), is a juvenile shell.

M. PRUNUM, Gmelin. Pl. 8, figs. 58–61; Pl. 9, fig. 62.

Light olivaceous or yellowish white, sometimes very faintly banded; lip-margin usually bordered exteriorly with orange, lip and columella white, interior chestnut-brown.

Length, 1–1·5 inches.

West Indies; Panama; Sierra Leone?; Brazil.

With this species I unite *M. sapotilla*, Hinds, from Panama (fig. 62); *M. Burchardi*, Dunker (fig. 60), locality unknown; and *M. Martini*, Petit (fig. 61), from Rio Janeiro. The original figure of *M. sapotilla*, which I have copied, represents a young shell; similar dark-colored specimens of this age occur among

West Indian shells; the full-grown shells from Panama being precisely like the West Indian specimens figured (figs. 58–59).

Section **Cryptospira**, Hinds.

Shell swollen, smooth, spire very short, nearly concealed; columella five- or six-plaited; outer lip thickened, smooth within; color gray or yellowish olivaceous, usually without bands, sometimes interruptedly banded or strigate. Nearly related to *Prunum*, but differs in having a shorter spire, less callous deposit and more columellar teeth or plaits.

M. QUINQUEPLICATA, Lam. Pl. 9, figs. 63–66.

Light olivaceous or slate-color; lip and interior white or tinged with yellow. Length, 1–1·5 inches.

Bay of Bengal, Malacca, Sumatra.

Var. HAINESII, Petit (fig. 66).

Shell callously thickened throughout.

M. encaustica, Reeve (fig. 65), is considered by Weinkauff a very young shell of *M. quinqueplicata;* I think this very probable, the additional columellar folds, and the numerous lip-denticulations being probably evanescent juvenile characters. I am helped to this conclusion by the fact that other juvenile forms exhibit similar characters.

M. ELEGANS, Gmelin. Pl. 9, figs. 67–70, 82; Pl. 2, fig. 8.

Gray, copiously banded with dark iron-gray, the bands composed of close longitudinal strigations; lip and lower part of columella orange-brown. Length, 1–1·75 inches.

Nicobar Is.; Moluccas.

With this species I unite as synonyms, *M. strigata*, Dillwyn (figs. 68, 69), a variety in which the strigations become undulated; *M. Burchardi*, Reeve (not Dunker) = *M. Loebbeckeana*, Weinkauff (fig. 70)—a colorless variety, to which belong *M. glauca* and *M. Marchi* of Jousseaume.

M. RUBENS, Martens. Pl. 13, fig. 39.

Shell ovate, corneous, margin of the lip pallid orange; columellar plications three, parietal plications two.

Length, 19 mill.

E. Coast of Patagonia, 60 fathoms.

Closely allied to *M. glauca*, Jousseaume, in form, but differs in

tint and in having a thickened lip-margin, and in the second plication being more unlike the lower one.

M. TRICINCTA, Hinds. Pl. 9, figs. 71, 72.

Ash-color, very obscurely triple-banded with chestnut.
Length, ·9 inch.

Straits of Macassar, coarse sand, at 11 fathoms (Belcher).

The bands are usually more visible within the aperture, being almost or entirely obscured by the gray callous coating. *M. immersa*, Reeve (fig. 72), is a synonym.

M. TRAILLII, Reeve. Pl. 9, fig. 73.

Yellowish white, lip thickly reflected, columella five-plaited.
Length, ·55 inch.

Malacca.

Dr. Weinkauff thinks this is probably the young of *M. Loebbeckeana* (= *elegans*), but it seems to be much more cylindrical than that species. It is in the Cumingian collection.

M. SEXPLICATA, Dunker. Pl. 9, fig. 74.

Grayish, inconspicuously longitudinally strigate, columella six-plaited. Length, ·5 inch.

Japan.

Described by Sowb. in 1870 as *M. obtusa*, a specific name preoccupied by himself in 1846, and therefore changed to *sexplicata* by Dunker in 1871, and to *grisea* by Jousseaume in 1875.

M. ODORICYI, Bernardi. Pl. 9, fig. 75.

White, with broad yellow bands, which are longitudinally strigate with orange-brown; interior of aperture orange.
Length, 18 mill.

Habitat unknown.

Described from a single specimen in a worn condition.

M. BERNARDII, Largill. Pl. 9, fig. 76.

Fulvous ash, longitudinally streaked with grayish brown; columella six-plaited. Length, 20 mill.

China Sea.

M. OLIVELLA, Reeve. Pl. 9, figs. 77, 83.

Inflated above, glassy white; columella four- to five-plaited.
Length, 10 mill.

N. S. Wales, Australia.

The upper fold of the columella is minute, sometimes not present, and this shell, as well as the next, are referred to the present section with some doubt.

M. PRÆCALLOSA, Higgins.

An unfigured species, yellowish white, linearly strigate, and with two distant bands; columella five-plaited, lip callously reflected, flexuously plicate within. Length, 25 mill.

Habitat unknown.

M. OBLONGA, Swainson. Pl. 9, figs. 78–80.

Flesh-color, obscurely broadly banded with a darker tint, and bearing two chestnut spots on the outer lip; sometimes slightly flecked with white. Length, ·8–1 inch.

Bahamas and *Yucatan.*

Is more attenuated than the next species, which it nevertheless so closely resembles in its occasional flecked coloration and in having the two spots on the lip, as to suggest community of origin. Mr. Redfield has proposed the names *M. amabilis* (fig. 79), and *M. rostrata* (fig. 80), for what appear to me to be only slight variations of this species: the latter has been independently described by Jousseaume as *M. canella.*

M. GUTTATA, Dillwyn. Pl. 9, fig. 81.

Flesh-colored, obscurely broadly banded with a darker tint over which are irregular snow-white flecks; outer lip and base bearing from two to five brown spots or short stripes.

Length, ·65–·9 inch.

West Indies, Florida, Beaufort, N. Carolina.

See remarks on preceding species.

M. NIVOSA, Hinds. Pl. 10, figs. 84, 85.

Pale flesh-color, obsoletely banded, with narrow longitudinal strigations and fleckings of white; lip without spots.

Length, ·5–·75 inch.

West Indies.

With this must be united *M. pruinosa*, Hinds (fig. 85), and *M. nivea*, C. B. Adams—the latter an unfigured species, founded on small specimens. *M. punctulata*, Petit, is an unfigured species from Senegal, which has not been identified heretofore; the description agrees well enough with *nivosa.* If it could be positively identified it would have priority over *nivosa.*

M. OLIVÆFORMIS, Kiener. Pl. 5, figs. 64–66.

Rather narrow, flesh-color, obscurely two- or three-banded, and occasionally longitudinally mottled with a darker tint.

Length, ·6 inch.

Senegal.

I agree with Weinkauff that *M. læta*, Jousseaume (fig. 65), is scarcely more than a fine, small example of this species. *M. Hindsiana*, Petit (fig. 66), proposed instead of *M. constricta*, Hinds, a name preoccupied by Conrad for a fossil species, is probably a synonym.

M. CARNEA, Storer. Pl. 10, fig. 86.

Orange-red, with a median narrow white band; lip and callus white. Length, ·75 inch.

West Indies, Florida, Beaufort, N. Carolina.

This very distinct species has been misunderstood by the European monographers, who have all confounded it with forms of *M. oblonga*, Swains.

M. ROSCIDA, Redfield. Pl. 10, fig. 88.

Yellowish flesh-color, flecked with white, tending to become longitudinally white-streaked below the suture; lip marked by two distant chestnut spots, with usually a third at its junction with the spire. Length, ·6 inch.

North and South Carolina.

Is very nearly related to the next species, but the spire is more developed, the shoulder more distinctly angular, and has the white spots of which *M. apicina* is destitute. It is a critical species and may prove to be only a variety of *M. apicina*.

M. APICINA, Menke. Pl. 10, figs. 89, 90.

Pure white, bluish, purple, pinkish or yellowish white, or orange-yellow, faintly darker banded, with two, three or four chestnut spots on the margin of the outer lip—sometimes obsolete. Length, ·4–·6 inch.

West Indies, Florida, Bahamas.

The pure white variety has been described by Jousseaume as *M. virginea*.

M. PELLUCIDA, Pfeiffer. Pl. 10, fig. 91.

Thin, diaphanous, orange-brown, sometimes faintly banded

with a darker tint; lip narrowly margined externally with orange-red. Length, ·5 inch.

West Indies, Bahamas.

Has the form of *M. apicina*, but differs remarkably in its diaphanous texture.

M. NITIDA, Hinds. Pl. 10, figs. 92, 93.

Thin, pellucid, amber-color; more cylindrical than *M. pellucida*, with the spire more produced. Length, ·45 inch.

Tampa Bay, Fla.

M. nitida was described without locality, but both description and figure so entirely correspond with *M. succinea*, Conrad (fig. 93), that I cannot doubt their identity. *M. succinea* is figured from the author's type.

M. WALLACEI, Jousseaume. Pl. 10, figs. 94, 95.

Orange-brown with a central white zone; columella obliquely four-plaited; lip white, thickened and margined, minutely and irregularly dentate within. Length, 12 mill.

Locality not certain, probably *West Indies.*

The minute lip-denticulations, if permanent, separate this species widely from its nearest allies in form and coloring; otherwise it is very like a small *M. carnea.*

M. CANTHARUS, Reeve. Pl. 10, fig. 96.

Transparent horny, rather solid, obscurely banded; lip thickened, opaque white. Length, 11 mill.

Habitat unknown.

M. CAPENSIS, Dunker. Pl. 10, fig. 97.

White, tinged or obscurely banded with very light orange-brown. Length, 12 mill.

Cape of Good Hope.

Of rather inflated growth.

M. PAXILLUS, Reeve. Pl. 10, fig. 98.

White or tinged with orange-brown; spire somewhat exserted, body-whorl rather swollen above, attenuated below; lip thickened, smooth, flexuous; columella four-plaited. Length, 8–9 mill.

Off *Florida* (Pourtales); *West Coast of Florida* (Jewett).

Described by Reeve without locality.

M. REDFIELDII, Tryon. Pl. 10, fig. 99.

Smooth, polished, white or yellowish; narrow, spire drawn

out, body-whorl attenuated below; lip flexuous, smooth, not much thickened externally, not thickened within; columella obliquely four-plaited. Length, 8 mill.

Dredged off *Florida* (Pourtales).

Of same general type as *M. paxillus*, but proportionally much narrower, with the spire exserted.

M. ANNULATA, Reeve. Pl. 10, fig. 100.

Rather solid, yellowish white, brown-margined below the sutures; body-whorl gibbously angled above; lip thickened, flexuous, columella four-plaited. Length, 8 mill.

Habitat unknown.

M. TRIPLICATA, Gaskoin. Pl. 10, figs. 1, 2.

Tumid pear-shaped, fleshy white, shining; spire small; lip thickly margined; columella triplicate. Length, 7 mill.

Philippines.

A very characteristic, cowry-shaped species.

Section **Volutelia**, Swainson.

Bulliform, ovate-oblong; spire depressed; pillar with four oblique plaits at the fore-part, lip smooth within.

M. BULLATA, Born. Pl. 10, figs. 3, 4.

Pale buff, sometimes very indistinctly banded with a darker tint; reddish brown within the aperture.

Length, 2·5–3·5 inches.

Bahia, Brazil.

This is the largest species of the genus and a veritable giant among Marginellas. A pale lemon-colored variety has been called *M. Cuvieri*, Desh. (fig. 4).

M. ANGUSTATA, Sowb. Pl. 10, fig. 5.

White, covered by interrupted chocolate or chestnut revolving lines, some of them approximating into bands.

Length, ·7–1·25 inches.

Indian Ocean; Australia.

M. BLANDA, Hinds. Pl. 10, fig. 6.

Orange-brown, outside and inside; obsoletely fasciated.

Length, ·75 inch.

Cape Blanco, W. Africa, 12-15 fathoms.

M. DACTYLUS, Lam. Pl. 10, fig. 7.

Pale fawn-color, without and in the interior.

Length, 1·1 inches.

Hong-Kong, China; Hinds.

Is more cylindrical than *M. blanda*, and has five columellar plaits.

M. ELLIPTICA, Redfield. Pl. 10, fig, 8.

White, or very faintly yellowish banded. Length, 9·5 mill.

Ins. Fanning, Polynesia.

Described by Mr. Pease as *M. elongata*, a name preoccupied by Bellardi for a fossil species.

Section **Persicula**, Schumacher.

Shell bulliform, spire depressed or sunken; usually banded or spotted; aperture long, the outer lip generally denticulated within, with a posterior channel, inner lip with a callosity posteriorly, four plaits anteriorly, with smaller ones behind them, becoming obsolete.

M. CORNEA, Lam. Pl. 10, fig. 9.

Fulvous flesh-color, obsoletely darker banded, lip and callus lighter. Length, ·8–1 inch.

West Africa.

M. PERSICULA, Linn. Pl. 10, fig. 10.

Fulvous white, copiously spotted with orange-red or chestnut. Length, ·75–·9 inch.

Senegambia, Cape Verd Is.

M. CINGULATA, Dillw. Pl. 10, fig. 11.

Fulvous white, with conspicuous zig-zag chestnut revolving lines. Length, ·7–·9 inch.

W. Africa, Canaries, Cape Verd Is.

In some specimens before me the revolving lines have broken up into spots; so that, distant as the two patterns of painting normally appear, this and the preceding may prove to be varieties of a single species.

M. MULTILINEATA, Sowb. Pl. 10, fig. 12.

Yellowish, with close-set chestnut revolving lines.

Length, ·5 inch.

Belize, Honduras.

M. PORCELLANA, Gmelin. Pl. 10, fig. 13.

Whitish, tesselated with close-set rows of chestnut quadrangular spots. Length, ·65 inch.

Venezuela.

M. KIENERIANA, Petit. Pl. 10, fig. 14.

Fawn to chestnut-color, with four white bands, on which are distant chocolate spots. Length, ·5–·75 inch.

Laguayra, Venezuela.

M. CALCULUS, Redfield. Pl. 10, fig. 15.

Whitish, tesselated with rows of chestnut spots, shaded with white, and forming longitudinal zig-zags. Length, ·4 inch.

Grenadines, West Indies.

This is the *M. guttata* of Sowerby, not Dillw. or Swains., and the *M. maculosa* of Reeve, not Kiener.

M. INTERRUPTE-LINEATA, Muhlf. Pl. 11, figs. 16, 17.

Yellowish white, profusely marked with gray or chestnut spots and short lines, in interrupted revolving series.

Length, ·5–·75 inch.

Liberia, West Indies, Venezuela.

M. OBESA, Redfield. Pl. 11, figs. 18, 19.

Differs from *M. interrupte-lineata*, in being usually larger, more ventricose, the revolving lines sometimes merging into spots, and in the outer margin of the lip possessing three spots; yet I think it will prove to be only a variety of that species.

Length, ·6–·75 inch.

Venezuela, Brazil.

M. IMBRICATA, Hinds. Pl. 11, figs. 20, 21.

Yellowish white, with revolving series of spots and lines of chestnut color, usually forming a single darker interrupted band on the periphery. Length, ·5 inch.

Acapulco Pacific Coast of Mexico.

M. Vautieri, Bernardi (fig. 21), appears to be a young shell of this species.

M. MACULOSA, Kiener. Pl. 11, figs. 22, 23.

Yellowish white, with revolving series of light chestnut spots, bordered with milk-white; there are usually two white bands, upon which are larger and darker spots. Length, ·4–·5 inch.

West Indies.

M. muralis, Hinds (fig. 23), is a synonym.

M. De Burghiæ, A. Adams. Pl. 11, fig. 24.

Transparent white, with larger and smaller chestnut spots in alternate rows. Length, ·4–·5 inch.

N. W. Coast of Australia.

I have before me specimens of a pure white variety, from Nicol Bay, communicated by John Brazier, Esq.

M. pulchella, Kiener. Pl. 11, fig. 25.

Yellowish white, with zig-zag longitudinal series of chestnut spots and lines, and usually two darker revolving series.

Length, ·35–·4 inch.

Sydney, Australia (Authors); *Ceylon* (Nevill).

M. phrygia, Sowb. Pl. 11, fig. 26.

Shell gibbous; yellowish, with zig-zag series of chestnut spots and lines, and two or three revolving series of darker color.

Length, ·3–·4 inch.

Acapulco and *Gulf of California.*

Marked like *M. pulchella*, but not so cylindrical in form. It is the *M. guttata* of Swains., not Dillw., and *M. Swainsoniana*, Petit.

M. frumentum, Sowb. Pl. 11, fig. 27.

Form and pattern of coloring very like *M. phrygia*, but the shell is slightly more cylindrical, and the zig-zags are usually much closer; the heavier coloring forming the bands, curves in an opposite direction. Length, ·25–·35 inch.

Coast of Ecuador (Redfield); *W. Coast of South America* (Weinkauff).

M. catenata, Mont. Pl. 11, figs. 28, 29.

Shell whitish, with chain-like revolving series of chestnut and milk-white spots. Length, ·15–·25 inch.

West Indies, W. Coast of N. America.

M. alba, C. B. Adams, is probably founded on a worn specimen of this species. Mr. W. H. Dall records the occurrence of *M. catenata* on the West Coast of America at Panama, Cape St. Lucas, and also at the Galapagos Is. There are six to ten of the revolving chains of spots, and frequently the chestnut-colored ones are not apparent, so that the shell is thin, whitish, translucent, with milk-white spots.

M. PULCHERRIMA, Gaskoin. Pl. 11, fig. 30.

Shell light yellowish, usually with darker bands and four revolving rows of brown and milk-white spots.

Length, ·15–·25 inch.

West Indies (Gaskoin); *Bahamas* (Redfield).

Has the form of *M. catenata*, and has frequently been confounded with it. May be distinguished by the faint bands and fewer series of revolving spots.

M. SAGITTATA, Hinds. Pl. 11, fig. 31.

Yellowish white, with light chestnut sagittate revolving series, and interrupted lighter, longitudinal zig-zag markings.

Length, ·25–·35 inch.

Caribbean; Bahamas to *Brazil; Australia.*

Has the form of *M. catenata* and nearly the markings of *M. phrygia.* I have before me specimens collected by J. Brazier in King George's Sound, S. W. Australia, which do not differ from the normal West Indian form of the species.

M. CHRYSOMELINA, Redfield. Pl. 11, fig. 32.

Yellowish white, with regularly spaced subquadrangular brown spots in revolving series. Length, ·3 inch.

West Indies.

M. PACIFICA, Pease. Pl. 11, fig. 33.

Whitish, with four or five rows of arrow-head brown markings. Length, 5 mill.

Paumotus Is.

Smaller and more cylindrical than *M. sagittata*, Hinds; the arrow-heads point to the left.

M. DUBIOSA, Dall. Pl. 11, fig. 34.

Yellowish brown, with uncertain fluctuating white bars, spots and streaks, irregularly disposed, with a general tendency to elongation in the direction of the lines of growth; callus above the spire marked with a circle of radiating brown dots, with an obscure white band outside of them; a dark brown patch on the outer edge of the outer lip. Length, ·3 inch.

Acapulco, Mexico.

Described from a single, evidently beach-worn specimen, and must be considered a doubtful species.

M. OVULUM, Sowb. Pl. 11, fig. 35.

White. Length, ·8 mill.

E. Australia.

M. OCCULTA, Monterosato. Pl. 11, fig. 36.

Whitish. Length, 2–3 mill.

Palermo, Sicily.

M. PISUM, Reeve. Pl. 11. fig. 37.

White. Length, 4 mill.

Australia (Strange).

It would be difficult to show any good distinctive characters between this and *M. occulta*. It might also be a young *M. ovulum*.

M. CLANDESTINA, Brocchi. Pl. 11, fig. 38; Pl. 2, fig. 10.

Glassy white, obovate, spire immersed, columella four-plaited, outer lip thickened and margined. Length, 3 mill.

Coast of Portugal; Canary Islands; Mediterranean Sea, from *Gibraltar* to *Egypt*. Fossil in the tertiary of *Italy* and *Sicily*.

M. ISSELI, Nevill. Pl. 11, fig. 39.

White, more elongated than *M. clandestina*, and smaller. Length, 1·25 mill.

Suez (Issel); *Coast of Persia*, 25 fathoms (Blanford).

Described by Issel as *M. pygmæa*, a name preoccupied by Sowerby.

M. ORYZA, Lam. Pl. 11, fig. 40.

Whitish, or yellowish white, with a broad central chestnut band. Length, 8 mill.

Senegal; Cape Verd Is.

Specimens before me, agreeing otherwise with the figures of this species, have the spire apparent, although short. There are four columellar folds, and in addition a number of transverse denticulations extending nearly the entire length of the inner lip. Remarking the presence of these, not mentioned in Lamarck's description, Jousseaume adopts Adanson's name for the species and calls it *M. stipon*, believing it to differ from *M. oryza*.

M. DENS, Reeve. Pl. 11, fig. 41.

Pear-shaped, opal-white. Length, 7 mill.

Borneo.

M. GUANCHIA, d'Orb. Pl. 11, fig. 42.

Whitish; columella four-plaited. Length, 1·5 mill.

Canary Islands.

Narrower than *M. clandestina*, and compressed at the ends.

M. OVULIFORMIS, d'Orb. Pl. 11, fig. 43.

White, columella with three plaits. Length, 1·5 mill.

West Indies.

Possibly an immature shell.

M. MARGARITULA, Carpenter.

White, columella with four plaits, very like *M. ovuliformis*. Length, ·032–·073 inch.

Mazatlan, W. Coast of Mexico.

I have no specimens of this unfigured, very minute species.

M. PYRIFORMIS, Carpenter. Pl. 13, fig. 38.

Like *M. margaritula*, but sometimes tinged with light orange; longer and narrower in front; lip (not always) very minutely denticulated; columellar plaits rather acute. Length, 2 mill.

Monterey to *San Diego, Cal.*

M. LEFEVREI, Bernardi. Pl. 11, fig. 44.

White or slightly yellowish. Length, 13 mill.

Habitat unknown.

Section **Gibberula**, Swainson.

Shell suboval; spire slightly prominent; outer lip posteriorly dilated and gibbous, not denticulated. A group of small species differing from *Persicula* in the spire being slightly prominent instead of sunken.

M. MONILIS, Linn. Pl. 11, figs. 45, 46.

Ivory-white; columella four-plaited; above the plaits are additional denticulations. Length, 10–12 mill.

West Africa; Red Sea; I. of Socotra.

The African tribes form necklaces of these shells. For the purpose of stringing them a hole is made through the upper part of the body-whorl, apparently by rubbing. M. Petit, finding the figures of this species in Sowerby's Thesaurus to have a spire more projecting than is warranted by Linnæus' description, and the locality of the latter being given as China, separates Sowerby's shells as *M. Sowerbyana;* no subsequent authors have recognized

this distinction. A large proportion of the localities given by Linnæus are erroneous. I cannot separate *M. Terveriana*, Petit (fig. 46), from the Island of Socotra and Red Sea.

M. MILIARIA, Linn. Pl. 11, figs. 47, 48.

White; columella four-plaited, with one or two denticulations above the plaits. Length, 4·5 mill.

Mediterranean; Portugal; Canary Isles; Gulf of Suez.

Is a common fossil in the Upper and Middle Tertiary of Southern Europe. Usually the outer lip is smooth, but occasionally it is very slightly, minutely crenulated. *M. Savignyi*, Issel (fig. 48), from Suez, presents characters so similar in description and figure, that I cannot separate it.

M. CARNEOLA, Petit. Pl. 11, fig. 49.

Pallid carneous, with two darker bands. Length, 8·5 mill.

Habitat unknown.

Petit mentions two bands in his description, yet his figure only shows a single broad central one. The species has not been fully identified; some authors suspect that it is equivalent to and has priority over *M. pyrulum*, Reeve, the next species; whilst the figure, if correct in representing only one band, is more like *M. oryza*, Lam.

M. PYRULUM, Reeve. Pl. 11, fig. 50.

Yellowish white, spire chestnut-color, with faint upper and lower bands. Length, 7 mill.

St. Thomas, W. I. (Reeve).

See remarks under preceding species. The difference between this species and those varieties of *M. oryza* with apparent spire, is very slight; both have the dark colored spire. They will possibly prove identical.

M. INFELIX, Jousseaume. Pl. 11, fig. 51.

Yellowish white; columella four-plaited. Length, 7·5 mill.

Port Jackson, Australia.

Described by Reeve as *M. simplex*, a name preoccupied by Edwards for a fossil species.

M. ASELLINA, Jousseaume. Pl. 12, fig. 52.

Yellowish white, trifasciate with orange-brown.

Length, 5 mill.

Mauritius.

M. JEWETTII, Carpenter. Pl. 12, fig. 57.

Milk-white; columella four-plaited. Length, 4·5–6 mill.

Monterey to *Santa Barbara, Cal.*

M. SUBTRIGONA, Carpenter. Pl. 12, fig. 55.

Like *M. Jewettii*, but much shorter and wider.

Length, ·14 inch.

Santa Barbara, Cal.

M. REGULARIS, Carpenter. Pl. 12, fig. 56.

Thin, glassy white or yellowish; narrower than *M. Jewettii;* lip-margin rather thick. Length, ·13 inch.

Monterey to *San Diego, Cal.;* beach to 20 fms.

M. LACHRYMA, Reeve. Pl. 12, figs. 53, 54.

Pyriformly ovate; glassy white; columella with four plaits, and several denticulations above them. Length, 4 mill.

Borneo.

The spire is shorter than in *M. infans*, Reeve, and the outline more convex below. *M. Crossei*, Vélain (fig. 54), from the vicinity of the Islands of St. Paul and Amsterdam, does not appear to differ except in size, being 1·5 mill.; it is perhaps not fully grown.

M. GLANDINA, Vélain. Pl. 12, fig. 58.

White, columella with two strong plications and three slighter ones above them. Length, 2·75 mill.

Island of St. Paul, Indian Ocean.

Scarcely distinguished from the preceding species by a somewhat more cylindrical form.

M. GRANUM, Phil.

Shell minute, obovate, white, spire shortly conical; columella straight, four-plicate, lip sulcate-striate within. Length, 4 mill.

Red Sea, near *Aden.*

Like *M. minuta*, Pfr., but slightly larger; lip strongly 8–10 sulcate within. Not figured.

M. MINUTA, Pfr. Pl. 12, figs. 60–63.

White, columella four-plaited, lip minutely denticulated within. Length, 2·5 mill.

Mediterranean, Red Sea, West Indies, Florida. Fossil in the Post Pliocene of *Southern Europe.*

M. Lavalleana, d'Orb (fig. 61), from the West Indies and Florida, does not appear to differ. The lip is described as smooth, and appears to be so in some specimens, but in others, in a favorable light and with a good glass, the denticulations or ridges can be plainly seen. *M. minima*, Guilding (fig. 62), is also a synonym, although described as having but three columellar plaits. I place here *M. Sueziensis*, Issel (fig. 63), from the Red Sea.

M. LACHRIMULA, Gould.

An unfigured, white, minute species, with scarcely any apparent spire, and lip surpassing it posteriorly; columella four-plaited; lip slightly crenulate within. Length, 1·5 mill.

Dredged in 400 fms. off the coast of *Georgia*.

Said to be distinguished from the allied West Indian species by its transparency and ventricose form.

M. BENSONI, Reeve. Pl. 12, fig. 64.

Rather solid, shining white; lip smooth, columella three-plaited. Length, 2 mill.

Cape of Good Hope.

M. MINOR, C. B. Adams. Pl. 12, fig. 65.

White, columella four- or five-plaited, lip smooth within. Length, 3–4 mill.

Panama to *Mazatlan.*

More cylindrical than *M. minuta*, Pfr.

M. POLITA, Carpenter.

Shell like *M. minor*, but smaller, regularly ovate, scarcely produced anteriorly, spire rounded, hardly raised; parietal callus small; plicæ four, nearly equal and conspicuous. Length, ·034 inch.

Mazatlan; six specimens on *Chama* and *Spondylus.*

I have not seen this species, which remains unfigured.

M. TRANSLATA, Redfield. Pl. 12, fig. 66.

White, with three luteous bands; lip denticulated within. Length, 6 mill.

Paumotus Is.

Described by Pease as *M. pyriformis*, a name preoccupied by Carpenter.

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M. ANGASI, Brazier. Pl. 12, fig. 67.

Shell hyaline lacteous; spire nearly planate; columella with inferior folds; lip smooth within. Length, 1·75 mill.

Port Jackson, Australia.

The animal is dark, with a red foot. Appears to be an immature shell.

M. POLYODONTA, Vélain. Pl. 12, fig. 68.

White, spire almost planate, columella with two plications, above which are nine or ten transverse teeth, terminating in a stronger tooth above. Length, 2·5 mill.

I. of St. Paul, Indian Ocean.

Found in compound Ascidians. Appears to be an immature shell.

M. SANDWICENSIS, Pease. Pl. 12, fig. 69.

Glossy white, columella usually four-plicate, lip abbreviately lirate within. Length, 2·5 mill.

Sandwich Is. (Pease); *Viti Is.* (Garrett).

Pease's species was not illustrated by him, and the figure of it in Reeve's Iconica is very bad. He does not mention the interior liræ or denticulations, which are not visible on all the specimens. Having types received from Pease and also types of Mr. Garrett's *M. pygmæa*, subsequently published, I do not hesitate to declare them identical.

M. DEBILIS, Pease.

Shell subpyriform, longitudinally striated, white; aperture narrow, contracted; apex obtuse; inner lip three-plaited, outer lip denticulated within.

Sandwich Islands.

Mr. Redfield and Dr. Weinkauff have made this a synonym of *M. Australis*, Hinds; although the description differs essentially. Pease originally published it as *M. oryza*, but that name being preoccupied, he changed it to *M. debilis*, and at the same time pointed out its distinctive characters from *Australis*. Dr. Jousseaume, ignorant of the change of name made by Pease, has proposed for it *M. aquægutta*. It has not been figured, and I have no specimens.

M. SEMEN, Reeve. Pl. 12, fig. 71.

Spire minute, almost immersed; shell dull white; columella callous, minutely four-plaited. Length, 4 mill.

Habitat unknown.

Jousseaume changed the name to *M. cinerea*, because Lea had previously used *semen* for a fossil species; the latter, however, is said to be the young of *M. larvata*, Conrad. Mr. Redfield remarks that this species is very near to *M. ovuliformis*, Orb.

M. PULVIS, Jousseaume. Pl. 12, fig. 72.

Vitreous white, with revolving striæ; lip minutely denticulate within; columella two-plaited. Length, 1·3 mill.

Isle of Bourbon.

Evidently, as suggested by Dr. Weinkauff, an embryonal shell.

M. MARIEI, Crosse. Pl. 12, fig. 73.

Minute, globosely inflated, spire immersed, columella four-plicate. Length, 1 mill.

New Caledonia.

Is this a juvenile of *M. Angasi*, Brazier?

M. ROS, Reeve. Pl. 12, fig. 74.

Glassy white, columella minutely plaited. Length, 4 mill.

Habitat unknown.

May be the equivalent of several other species of this section.

M. BULBOSA, Reeve. Pl. 12, fig. 75.

Opaque white; columella four-plaited; lip minutely denticulated within. Length, 6 mill.

Borneo.

M. CYSTISCUS, Redfield. Pl. 12, fig. 70; Pl. 2, fig. 11.

Shell white, columella four-plaited. Length, ·14 inch.

False Bay, Cape of Good Hope; from Gorgoniæ in 20 fathoms.

The dentition and shell are like *Marginella;* but the animal, which has short, flattened, triangular, horizontal tentacles, with minute dark reddish eyes, behind their bases, differed sufficiently to induce Stimpson, who discovered the species, to establish for it a new family Cystiscidæ, and to call it *Cystiscus Capensis*. Mr. Redfield, very properly, I think, remanded the species to *Marginella*, and the specific name being preoccupied in that genus, called it *M. cystiscus*. The foot of the animal is lemon-yellow.

Section **Closia**, Gray.

Spire involute; lip thick, usually dentate within; columella heavily incrusted with callus, two lower folds of columella very prominent, two superior ones not so prominent; above them there are sometimes deposited a series of false folds or transverse ridges as in *Cypræa:* which it resembles; especially its dorsal aspect.

M. LARGILLIERTI, Kiener. Pl. 12, figs. 77, 78.

Pale violet fawn-color or yellowish brown, more or less obscurely banded and flecked with yellowish white.

Length, ·75–1 inch.

Bahia, Brazil.

M. ovum, Reeve (fig. 78), is only an unpainted, probably faded, state of this species.

M. LILACINA, Sowb. Pl. 12, fig. 80.

Flesh-white, stained with pale lilac, with an indistinct broad central band. Length, ·9 inch.

Habitat unknown.

M. SARDA, Kiener. Pl. 12, figs. 81–83.

Whitish, faintly three-banded with violet; lip tinged exteriorly with yellowish brown. Length, ·65 inch.

Ceylon, Mauritius.

M. Manceli, Jousseaume (fig. 83), appears to be identical with this species.

M. QUADRILINEATA, Gaskoin. Pl. 12, fig. 79.

Ash-gray, with four distant, dark revolving lines.

Length, ·8 inch.

Habitat unknown.

M. CONTAMINATA, Gaskoin.

This unfigured and unrecognized species, without assigned habitat and undeterminable, appears to belong in this group.

Subgenus **Volvaria**, Lam.

Shell subcylindrical; spire very short or sunken; aperture narrow, anteriorly dilated; columella sinuous in front, subflexuous, obliquely truncated, and with four oblique plaits; outer lip slightly thickened without, or with only a slight marginal varix.

A single recent species, *M. pallida*, is very similar to the fossil

forms for which Lamarck originally proposed the genus; in all the other recent species the lip becomes more or less thickened with a slight varix.

I figure the fossil form *V. bulloïdes*, Lam. (Pl. 3, fig. 28), from the Middle Eocene of France and Belgium.

M. PALLIDA, Linn. Pl. 12, fig. 84.

White or yellowish, sometimes obscurely banded in the centre. Length, ·6–·7 inch.

West Indies.

M. LUCIDA, Marrat. Pl. 12, fig. 85.

White, lip slightly thickened; spire obsolete. Length, ·35 inch.

Natal, So. Africa.

M. COMPRESSA, Reeve. Pl. 12, fig. 86.

Shining white, glassy, spire very short. Length, ·4 inch.

Habitat unknown.

Dr. Weinkauff supposes this to be possibly a young shell of *M. pallida*, but the lip is too much thickened; I am very doubtful whether either this or *M. lucida* is distinct from *M. lactea*, Kiener.

M. MUSTELINA, Angas. Pl. 12, fig. 87.

Light brown, with two yellowish bands, bordered with darker brown in series of spots. Length, 5 mill.

Port Jackson; Botany Bay, Australia.

This is possibly synonymous with *M. obscura*, Reeve—a species of which I have no specimens. There is some resemblance in the coloring and form.

M. FAUNA, Sowb. Pl. 12, figs. 88–90.

Pinkish or yellowish white, or pure white; stouter than the preceding species. Length, ·35–·45 inch.

West Indies.

With this may probably be united *M. alabaster*, Reeve (fig. 89 , and *M. diaphana*, Küster, not Kiener (fig. 90).

M. OLIVELLÆFORMIS, Jousseaume. Pl. 12, fig. 91.

White, sutures canaliculate, columella four-plicate, lip toothed within. Length, ·4 mill.

Habitat unknown.

The channeled suture is the distinguishing feature of this species—for which Dr. Weinkauff has proposed the subgeneric name *Canalispira*.

M. ZONATA, Kiener. Pl. 12, figs. 92–94.

Thin, whitish, either very broadly banded, or lineated above and below with fulvous orange. Length, ·3 inch.

Cape of Good Hope; Madagascar; West Indies.

In *M. zonata* (fig. 92), the coloring nearly covers the body-whorl in a single band; and with this variety corresponds *M. Dunkeri*, Krauss. In *M. bilineata*, Krauss (figs. 93, 94), the shell is white, bilineated with chestnut. Sometimes the broad band is present, with the deeper colored lineations defining its margins, and in one specimen before me the band is visible on a portion of the whorl only, but the lineations are present.

M. PUELLA, Gould.

Resembles *M. zonata*, but is much larger, with no traces of bands. The animal is very active, of a pale lemon-color, with blotches of flake-white and very numerous crimson points; margin of mantle dark chocolate. Length, 12 mill.

Simon's Bay, So. Africa, 18 fathoms, gravelly bottom.

Unfigured.

M. MICANS, Petit. Pl. 13, fig. 95.

Whitish, with two broad bands of chestnut. Length, 8 mill.

Abd-el-Gouri E. Coast of Africa.

M. LACTEA, Kiener. Pl. 13, figs. 98, 99.

White or cream-colored, columella four-plicate.

Length, 8 mill.

West Indies.

M. affinis, Reeve (fig. 99), appears to be this species, Reeve having figured the next species for *lactea*. *M. abbreviata*, C. B. Adams, is also probably a synonym.

M. SUBTRIPLICATA, Orb. Pl. 13, fig. 100.

White or cream-color, more cylindrical than *M. lactea*, with more produced spire, columella three-plaited, shell larger.

Length, 10 mill.

West Indies.

M. MEXICANA, Jousseaume. Pl. 13, fig. 1.

Rather solid, opaque white, with four very obscure bands, columella four-plaited. Length, 7 mill.

Mexico.

Possibly a variety of *M. lactea*, Kiener. I am not acquainted with the species.

M. AVENA, Valenc. Pl. 13, figs. 2–5, 8.

White or yellowish white, with three broad bands of brownish yellow; columella four-plaited. Length, ·45–·6 inch.

West Indies.

Var. BEYERLEANA, Bernardi (figs. 3, 8).

White or rosy-white, with the bands of rose-color; it is clearly connected by intermediate shades with the type. Some of these intermediate states are *M. livida*, Reeve (fig. 4), *M. effulgens*, Reeve, and *M. guttula*, Reeve (fig. 5 .

Var. AVENELLA, Dall.

Shell exceedingly variable in proportions; spire short, obtuse, sometimes almost suppressed; color light yellow or yellowish white, with a faint white line bordering the suture; general outline elongated ovate; aperture long, narrow behind (where the outer lip is thickened and a little inflected), wider in front (where it is thin), and a little flaring at its (widest) anterior termination; columella with four subequal folds, all rather oblique; outer lip simple, thickened behind, where the line of callus may extend to the suture or fall considerably short of it; slightly concave in the middle, where its edge is even turned in a little; scarcely, if at all, produced forward; whorls not at all or very slightly shouldered, three or four in number. In the form with the short rounded spire, the outer lip is straight, not inflected, and more evenly thickened along its whole length; the anterior end of the aperture has the outer lip obliquely cut off, and not flaring. The whole form is more evenly ovate-cylindrical. The measurements of the long- and short-spired specimens are respectively as follows:—Lon. of shell, 12·0 and 9·5; of whorl, 10·25 and 9·0; of aperture, 9·5 and 8·25. Max. lat. of shell, 5·0 and 3·75; lat. of aperture at middle part, 1·0 and 1·0 mm.

Off *Cape San Antonio*, 1002 fms.; *Station* 5, 229 and 152 fms.; *Station* 2, 805 fathoms, *Caribbean*.

Notwithstanding the differences above indicated by extreme specimens, the shells appear to grade into one another and to approach very closely the old *M. avena* of Valenciennes, of which indeed this may be but an abyssal race; but of the latter I have no typical specimens, and it is described as having color-bands. In view of the great number of closely allied forms of this group, without such specimens it would be rash to consolidate.

Another form with the spire almost lost (from Yucatan Strait, 640 fms., and Station 2, 805 fms.), of a yellowish white tinge, strongly resembles d'Orbigny's *M. triplicata*, which I take to have been founded on an abnormal specimen, and might be thought a pale race of *Volvarina varia*, but I am not at all sure that it is not an extreme form of the preceding.

I quote Mr. Dall's description of the above varieties in full, as they are unfigured, and are deep-sea forms; they are doubtless varieties only, as suspected by Mr. Dall.

M. PATAGONICA, Martens. Pl. 13, fig. 40.

White, with two wide light rosy bands; columella with four plications, the lower the strongest. Length, 18 mill.

East Coast of Patagonia—60 fathoms.

M. PHILIPPINARUM, Redfield. Pl. 13, fig. 6; Pl. 2, fig. 9.

Yellowish white, with three rather broad darker bands; columella four-plaited. Length, ·5–·65 inch.

Philippines.

M. EXILIS, Gmelin. Pl. 13, figs. 7, 9, 10, 11, 96, 97; Pl. 12, fig. 59.

Yellowish white, without bands, or three-banded with light chestnut. Length, 10 mill.

W. Africa, Mogadore to *Senegal; West Indies.*

A more ventricose, shorter species than some of those which precede it. It is the *M. triticea* of Lamarck (fig. 7), *M. monilis* of Wood, not Linn. *M. epigrus*, Reeve (fig. 9), is supposed by Mr. Redfield to be the young of this species. *M. tribalteata*, Reeve (fig. 11), and *M. fusca*, Sowb, (figs. 96, 97)—a West Indian shell, are synonyms. I am inclined to place here, as a not fully grown shell, *M. Benguelensis*, Jouss. (Pl. 12, fig. 59; Pl. 13, fig. 10), from Benguela. *M. Jousseaumi*, Rochbrune, from the Cape Verd Islands, is also a synonym.

M. MEDIOCINCTA, E. A. Smith. Pl. 13, figs. 12, 13.

White, with two broad light chestnut bands; columella four-plaited. Length, 6·5 mill.

Cape Verd Is.

The coloring is above and below the middle, covering the body-whorl except a central white zone. *M. Bouvieri*, Jousseaume (fig. 13), is a synonym.

M. RUBELLA, C. B. Adams. Pl. 13, figs. 14, 15.

Rosy white, with three faint rose-colored bands; columella four-plaited. Length, 8–11 mill.

Jamaica and *St. Thomas, W. I.*

M. navicella, Reeve (fig. 15), is a synonym.

M. TÆNIATA, Sowb. Pl. 13, figs. 16, 17.

Whitish or yellowish white, with sutural, median and basal bands of yellowish brown, and a narrower band of the same color between the last two; sometimes the coloring is roseate, and occasionally a pair of proximate narrow lines take the place of a broad band. Length, 12–15 mill.

Cape Verd Is; West Indies.

Very like *M. avena*, Val., and may be only a variety of that species; its distinctive characters being a shorter spire and the additional narrow band. *M. Verdensis*, E. A. Smith (fig. 17), is identical with this species.

M. CESSACI, Rochbrune.

Elliptical, shining, thick; spire short, conical, obtuse; aperture long and narrow, a little dilated above; lip thick; columella four-plaited; wine-red with a livid band at the top of the whorl. Length, 11 mill.

Hab. Cape Verd Islands.

Seems to be very closely allied to *M. tæniata*. The work containing the figure of this species, arrived too late to have it illustrated in the Manual.

M. OBSCURA, Reeve. Pl. 13, fig. 22.

Yellowish white, faintly four-banded, the bands terminating in spots on the margin of the lip. Length, 9 mill.

Habitat unknown.

M. SECALINA, Phil. Pl. 13, figs. 18–21.

Yellowish or brownish white, more or less obscurely three-banded. Length, 10 mill.

Mediterranean Sea.

M. Calameli, Jousseaume (fig. 18), from Algiers, is made a synonym by Dr. Weinkauff, who has quoted it as an example of his var. *bizonata*. The banding, however, is more or less visible on all specimens, and his variety is not entitled to be so considered. *M. rufescens*, Reeve (fig. 19), is another probable synonym. *M. Lienardi*, Jousseaume, said to come from Mauritius, and Isle of Bourbon, is founded on two of Sowerby's figures of this species.

M. INFANS, Reeve. Pl. 13, fig. 23.

Transparent white, mostly encircled by two faint brown lines; columella four-plaited. Length, 5 mill.

Singapore; Tasmania.

Erato pellucida, Tenison-Woods, from the latter locality, is an unfigured species, but the description as well as specimens before me agree very well with *M. infans*.

M. ATTENUATA, Reeve. Pl. 13, fig. 24.

Yellowish white, body-whorl slightly attenuated below, lip flexuous, columella obliquely four-plaited. Length, 8 mill.

Sydney, New South Wales.

This is the *M. translucida* of Weinkauff and of some Australian collectors; the true *translucida* is a very different species.

M. HETEROZONA, Jousseaume. Pl. 13, fig. 25.

Vitreous white, with an obsolete central brown band. Length, 5 mill.

Habitat unknown.

M. CYLINDRICA, Sowb. Pl. 13, fig. 26.

Yellowish white, with broad and narrow darker bands, irregular in number; columella three-plaited. Length, 6–7 mill.

St. Thomas, West Indies.

M. PEASII, Reeve. Pl. 13, fig. 27.

Milk-white, very obscurely three-banded with fulvous. Length, 10 mill.

Kingsmill Is., Polynesia.

This species has been unfortunate in its names: it was first described by Pease as *M. cylindrica*, but as that name was preoc-

cupied by Sowerby, Reeve changed it as above, and Pease subsequently, unaware that Reeve had already proposed a substitute, called it *M. polita*—a name which was already used by Carpenter.

M. Paumotensis, Pease. Pl. 13, fig. 28.

White, with three very faint yellowish bands; columella three-plaited. Length, 5 mill.

Paumotus Is.

M. Caledonica, Jousseaume. Pl. 13, fig. 31.

White, very obscurely bifasciate with yellowish brown; columella three-plaited. Length, 7 mill.

New Caledonia.

I have not seen a specimen of this shell, but the figure is so close to *M. Paumotensis*, Pease, that I suspect it will prove to be synonymous with that species.

M. corusca, Reeve. Pl. 13, fig. 29.

Transparent, horny, livid, very faintly two-banded with chestnut; columella four-plaited. Length, 5 mill.

Singapore.

M. Bazini, Jousseaume. Pl. 13, fig. 30.

Vitreous white, subpellucid, with a fuscous line above; columella four-plaited. Length, 5 mill.

Habitat unknown.

A species of very doubtful distinctness.

M. sordida, Reeve. Pl. 13, fig. 32.

Dull white; columella three-plaited. Length, 7 mill.

Habitat unknown.

This, like the last, may be identified with several different species.

M. bullula, Reeve. Pl. 13, fig. 33.

Transparent white, glassy; columella four-plaited. Length, 6 mill.

Borneo.

It is difficult to say wherein *M. Paumotensis*, Pease, differs from this species.

M. fasciata, Sowb. Pl. 13, fig 34.

Yellowish white, banded with light brown, edged with darker brown, forming spots on the margin of the lip; columella strongly four-plaited. Length, 7 mill.

Locality unknown.

Jousseaume changed the name to *M. rubrofasciata*, on account of *Persicula fasciata*, Schum., which is a synonym of *M. persicula*, Linn. I have no authentic specimen of this species; it needs to be compared with *M. mustelina*, Angas.

M. Baylei, Jousseaume. Pl. 13, fig. 35.

Bulliform, opaque; luteous white; columella three-plaited. Length, 12 mill.

Locality unknown.

M. gracilis, C. B. Adams. Pl. 13, fig. 36.

White, three-banded with chestnut. Length, 6·5 mill.

West Indies.

Prof. Adams did not illustrate his species, but the description so completely agrees with Reeve's figure of *M. bibalteata*, that I think Mr. Redfield is correct in making the latter a synonym.

M. albolineata, d'Orb. Pl. 13, fig. 37.

White, more or less broadly three-banded with bright chestnut; sometimes the bands are so broad that the shell appears to be chestnut-colored with two white bands. Length, 6–7 mill.

West Indies, Lower California.

M. Delessertiana, Recluz, an unfigured species, said to come from Mauritius, resembles this species, but cannot be positively identified with it. The shell which Weinkauff figures for *M. Delessertiana*, and which comes from Guadeloupe, W. I., is a *M. albolineata*. This is the *M. varia*, Sowerby, of Carpenter and Californian conchologists. Carpenter says that it is not to be distinguished from some West Indian specimens of *M. varia*, but the fact is that *M. varia* is made up of two very distinct forms, namely *M. albolineata*, Orb., and *M. avena*, Val.—the latter has not been found on the West Coast of America.

Unfigured and Undetermined Species.

M. tenera and M. intermedia of Menke.

M. asphari, Theobald. Undescribed.

M. microscopica, Tapparone-Canefri. *Papuan Isles.*

M. tridentata, M. subbulbosa, M. albida, M. cymbalum, M. denticulata, Tate. All from *South Australia.*

M. vittata (name preoccupied), M. albescens, Hutton. Both from *New Zealand.*

M. tantilla and M. lepida, Gould. *China Sea.*

M. SEMINULA, Gould. *Cape of Good Hope.*

M. SPILOTA, Ravenel MS. *Southern Coast United States.*

M. ALLPORTI, M. MINUTISSIMA, M. STANISLAUS, Tenison-Woods. *Tasmania.*

M. PALLIDULA and M. FULGENS, Dunker. *Upolu.*

M. MÖRCHII, Redfield (*M. coniformis*, Mörch, preoccupied). *Puntas Arenas, W. Co. Central America.*

M. ALBANYANA, Gaskoin. *Albany, E. Coast of Africa.*

M. QUADRIFASCIATA (*Kabenda, W. Co. Africa*), M. NANA,

M. PERLA, M. CALLOSA (*Red Sea*), Marrat.

M. WARRENII, Marrat. A two-banded shell, 20 mill. long. Collected by Capt. Warren in the *Gulf of St. Lawrence*, or—if the latitude and longitude are correctly given—upon the adjacent Canadian territory. It is safe to say that no such species lives in that vicinity or within some hundreds of miles of it.

M. CHEMNITZII, Dillwyn. Bleached specimen.

M. ANNA, Jousseaume. *New Caledonia.*

M. WATSONI, Dall.

Shell short, stout, white or yellowish white, polished, five-whorled; suture marked under the glaze with a darker translucent line; apex obtuse; in adults the nucleus is obscured by the glaze, in young specimens it presents no differences from the rest of the shell; last whorl shouldered roundly, forming a rounded angle at the posterior part of the outer lip; aperture narrow, labrum and labium nearly parallel; pillar with four clearly cut folds, the anterior continued around the margin of the canal, slightly flaring, to join the outer lip; the latter slightly thickened inside, with about a dozen rounded denticulations, outwardly little or not at all reflected, joining the body behind at an acute angle. Long. of shell, 9·5; of last whorl, 8·0; of aperture, 7·5. Lat. of shell, 6·0; of aperture, 1·5 mm.

Off *Havana*, 480 fms.; *Station* 2, 805 fms.; *Bed of the Gulf Stream* (Pourtalès), 447 fms.; *Yucatan Strait*, 640 fms.

This species resembles *M. vitrea*, Hinds, from West Africa, in general shape, but that species is smaller and has the outer lip not denticulated. *M. Watsoni* has the facies of a deep-water shell, and does not appear to agree exactly with any I find figured (Dall).

M. FUSINA, Dall.

Shell ovate-fusiform, with the spire nearly as long as the aperture, polished waxen white, five-whorled; whorls of the spire well marked and rotundate though covered with a transparent glaze; suture distinct; apex rounded; lines of growth perceptible under the glaze, especially near the suture on the last whorl; aperture short, lunate, with no posterior angle in the outer lip, which gently rounds to the body-whorl before and behind; outer lip a little thickened inside, simple, not reflected; folds four, the two anterior ones very oblique and close together; canal not flaring, short, and not twisted backward. Long. of shell, 8·0; of last whorl, 6·0; of aperture, 4·5. Max. lat., 4·0; lat. of aperture, 1·5 mm.

Yucatan Strait, 640 fms.

This has somewhat the shape of *Marginella nodata*, in a general way, but is more evenly fusiform, and quite peculiar in its even taper, which does not seem to be ascribed to any other species (Dall).

M. SEMINULA, Dall.

This species differs from the last by its proportionally shorter spire containing one less whorl; by the less distinctly marked suture; by the shouldering of the last whorl which angulates the outer lip in adult specimens, the lip in this vicinity being generally much thickened and slightly reflected, somewhat produced in the middle, and thinning towards the distinctly flaring canal; the columellar folds are more evenly separated and the canal is slightly recurved. In other respects it resembles *M. fusina*. Long. of shell, 7·0; of last whorl, 5·62; of aperture, 5·12. Lat. of shell, 3·5; of aperture, 1·25 mm.

Yucatan Strait, 640 fms.

There is some variation in size and in the way in which the outer lip is thickened in different individuals. The shape is not far from that of *M. festiva*. The measurements are of the largest of several specimens (Dall).

M. YUCATECANA, Dall.

Shell with three and a half to four whorls, smaller than the last and the adult specimens proportionally more slender and of a

distinctly different shape; but some of the younger specimens of *M. seminula*, before they have put on the lip-callus and its angulation, appear much more similar, and suggest that the range of variation may be wide enough to cover both. The present form, with a proportionately shorter spire and longer and wider aperture, has an evenly rounded outer lip and body-whorl; which recalls *M. fusina*. Its chief differences from *M. seminula* consist in those features which accompany the shouldering of the whorls and the thickening of the outer lip, which in this form seems to be always evenly rounded, arched forward, and hardly thickened; it is slightly but distinctly reflected, and the canal is slightly recurved. Long. of shell, 5·62; of last whorl, 5 0; of aperture, 4·0. Lat. of shell, 3·0; of aperture, 1·37 mm.

Yucatan Strait, 640 fms.

M. TORTICULA, Dall.

Shell slender, shining, grayish waxen white, of about five whorls; spire roundly pointed, slender, covered in the adult with a complete coat of translucent glaze almost obscuring the sutures; last whorl somewhat appressed between the junction of the outer lip and the suture; turns somewhat laxly coiled; surface perfectly smooth; axis laterally curved, with the convexity to the left, so that the spire and the canal both point to right of a straight line when the shell is in its natural position; aperture long and narrow; columella with four very oblique folds, of which the one behind the anterior fold is a little the most prominent; outer lip simple, not reflected, slightly thickened, and produced posteriorly, inwardly convex and externally concave in correspondence with the bent axis; aperture widest anteriorly, making the canal very open; no callus on the body-whorl, which is joined by the outer lip at an exceedingly acute angle. Long. of shell, 11·5; of last whorl, 9·75; of aperture, 8·0; Max. lat. of shell, 3·75; medium lat. of aperture, 1·0 mm.

Station 5, *Lat.* 24°15′, *Long.* 76°49′.5, in 229 and 152 fms., soft coral ooze, *West Indies*.

The only shells normally arcuated in this manner which occur to me are some species of *Eulima*. The twist gives the shell a very peculiar and highly characteristic appearance (Dall).

Family OLIVIDÆ.

Animal with a recurved siphon, and voluminous foot, its lobes usually reflexed over the sides of the shell, and fissured on each side in front. Dentition 1·1·1, the rhachidian teeth broad, the laterals versatile. Operculum corneous, small, present or wanting.

Shell brilliantly colored, porcellanous, without epidermis, the columellar lip, sutures and spire more or less covered with a callous deposit; outer lip simple, aperture obliquely notched below.

Subfamily *Olivinæ*.—Head and tentacles more or less concealed; mantle with a tapering lobe in front, and an appendage behind which reposes in the channeled suture.

The operculum is present in *Olivella*, absent in *Oliva*.

Shell solid, smooth, subcylindrical; sutures channeled; inner lip more or less plicate anteriorly. Several figures of the animals of *Oliva* are given on Pl. 1; also the animal without its shell, Pl. 3, fig. 31; anatomy, Pl. 3, fig. 21. For explanation of the latter see Reference to Plates.

Subfamily *Ancillariinæ*.—Head concealed; eyes none; tentacles rudimentary; mantle with a tapering lobe in front; foot voluminous, bifid behind, shield-grooved on the upper surface, side-lobes not much produced.

Operculum small, ovate, acute, sometimes entirely wanting.

Shell usually polished; sutures covered by callus; whorls smooth; aperture effuse, the columella variously grooved and twisted in front.

Subfamily *Harpinæ*.—Head and tentacles exposed; eyes conspicuous; mantle simple, enclosed, without a tapering appendage in front; foot large, flat, not reflexed on the sides of the shell.

No operculum.

Shell large, ventricose, longitudinally ribbed; columellar lip without anterior plications or grooves.

Subfamily OLIVINÆ.

Synopsis of Genera.

OLIVELLA, Swainson.

Animal without tentacles or eyes; mantle with a large frontal lobe; foot not very voluminous, truncate behind, the shield narrow, the side-lobes small and acute. Operculum horny, thin, half-ovate, with apical

nucleus. Shell oliviform, polished; spire produced, acute, suture canaliculated; aperture narrow behind, enlarged anteriorly; columella plicated in front, callous posteriorly. Dentition, Pl. 12, fig. 14.

OLIVA, Brug.

Tentacles enlarged at the base; mantle with a posterior filament lodged in the channeled suture of the spire; foot long and acuminate behind, shield with the side-lobes tapering, acute, small. Operculum none. Shell oblong, subcylindrical, polished; spire short, conic; suture canaliculated; aperture long and narrow, anteriorly widely notched; columella obliquely plicate, sulcate or striate in front, posteriorly callous; outer lip simple. Dentition, Pl. 2, fig. 12.

Subgenus LAMPRODOMA, Swainson.

Spire acuminate, elevated, suture canaliculated; inner lip simple posteriorly, but regularly numerously plicate anteriorly, the plicæ more transverse than in the typical group.

Subgenus CALLIANAX, H. and A. Adams.

Shell swollen, ovate, with short conical spire and channeled sutures; aperture wide, effuse in front; inner lip with a very thick, defined callus, and a few, frequently indistinct, anterior plaits.

Subgenus AGARONIA, Gray.

Shell thin, oliviform, but a little effuse anteriorly; spire acuminate, suture channeled; aperture rather wide, effuse anteriorly; columella not thickened posteriorly, tumid, with a few oblique plaits in front. Operculum distinct. *Tortoliva*, Conrad; *T. Texana*, Conr. (Pl. 3, fig. 30), is a synonym of *Agaronia*. It is an eocene fossil from Texas. Dentition, Pl. 2, fig. 13.

Subgenus OLIVANCILLARIA, d'Orbigny.

Head and tentacles concealed; mantle with a large, thick, fleshy appendage behind, partly covering the spire; foot very voluminous, truncate posteriorly, shield with the side-lobes very large and rounded. Operculum present, small, half ovate, with subapical nucleus.

Shell smooth, wide oblong, last whorl swollen; spire very short, the suture not canaliculated to the apex; aperture rather large and wide, inner lip somewhat tortuous, with a large callosity behind, incurved in the middle, and two or three oblique anterior plaits.

The last three subgenera appear to connect the typical Olives with the Ancillariæ, in a regular series of stages of both animal and shell, as well as in the presence of an operculum.

PLOCHELÆA, Gabb.

Shell olive-shaped, suture nearly obsolete as in Ancillaria; aperture linear, deeply and obliquely notched at the base, as in Dibaphus; outer lip thickened internally in the middle; inner lip callous and having several transverse folds, of which the upper are the smallest; columella strongly recurved at the base. *P. crassilabra*, Gabb. Pl. 3, fig. 22, Tertiary, *W. Indies*.

Subfamily ANCILLARIINÆ.

MONOPTYGMA, Lea.

Shell with elevated spire and callous columella, the latter with a subcentral conical tooth like callous projection. *M. Alabamiensis*, Lea (Pl. 3, fig. 23), Eocene, *Alabama*.

ANCILLARIA, Lam.

Shell oblong or subcylindrical, thick and smooth in the typical species; body-whorl usually swollen, sutures covered by enamel; aperture broadly effuse below; columella typically not umbilicated, with a few oblique anterior plaits. The revolving basal groove ends occasionally in a slight anterior labral projection or tooth. The shell may be distinguished from the Olives by the spire being covered with callus in the former, whilst in the latter the suture is canaliculate. *Ancillopsis*, Conrad (*A. scamba*, Pl. 3, fig. 26; *A. altile*, Pl. 3, fig. 27), is a synonym of *Ancillaria*. The types are eocene fossils from *Alabama*. Dentition, Pl. 2, figs. 15, 16.

Subgenus OLIVULA, Conrad.

Shell decussated by distinct, close longitudinal and revolving striæ; spire covered by a longitudinally striate callous deposit, forming a raised band upon the suture of the body-whorl; aperture posteriorly channeled. Fossil only. *O. staminea*, Conr., Eocene, *Ala.* (Pl. 3, figs. 24, 25).

Subgenus ANOLACIA. Gray.

Shell oblong-ovate, thin; body-whorl swollen, irregularly covered with slight revolving striæ; spire very short, callous.

The thinness of the shell, form of body-whorl and short shouldered spire remind one of the genus *Cymba*.

Subgenus DIPSACCUS, Klein.

Shell solid, polished; columellar lip twisted, separated from the body-whorl by a tortuous fissure, opening into the umbilicus above; outer lip with a slight tooth in front.

Subfamily HARPINÆ.

HARPA, Lam.

Shell oval, the body-whorl very ventricose; spire very short, with acute apex; whorls longitudinally plicated at intervals, the plications ending in sharp points on the shoulder; aperture oblong, large, broadly emarginate below; columella without folds. No operculum. Dentition, Pl. 2, fig. 17.

The figure, copied from Troschel, is from a young *Harpa* only an inch in length, and the lingual ribbon is in this genus very minute compared with the size of the animal. Troschel was not able to see any lateral teeth, but Macdonald, who only observed them towards the posterior extremity, records that they are very similar to those of *Oliva*. Other observers have not found a trace of lingual armature, and it is possibly only developed in the young animal.

Subfamily OLIVINÆ.

Four illustrated monographies of the Olives have been published. The earliest one is that of Duclos, forming part of Chenu's "Illustrations Conchyliologiques;" next followed Reeve, in the "Conchologica Iconica," vol. vi, issued in 1851. In 1870–71 F. P. Marrat contributed an elaborate monograph to Sowerby's "Thesaurus Conchyliorum," beautifully illustrated by Mr. Sowerby. Mr. Marrat, who does not believe in species, has, unfortunately, in this group as in *Nassa*, illustrated his views by naming and describing a number of forms which certainly are *not* species. Sowerby, in the reference to Plate 1, says: "Mr. Marrat's intention is rather to produce evidence than to decide upon the value of specific differences. In his study of affinities, he has been led to register, and nominally to admit, as species many forms which will perhaps appear to readers, as they do to the editor, quite undistinguishable." The latest and best monograph is that of Dr. H. C. Weinkauff, completed in 1878, and forming a portion of Küster's "Conchylien Cabinet." Dr. Weinkauff also published a systematic catalogue of the species, in the "Jahrbücher der Deutsch. Malak. Gesell.," in which he attempts to arrange the species in accordance with their natural affinities and to separate them into groups—which appear to possess some value. I have mainly followed this catalogue in the present monography; adding, however, a number of specific names overlooked by Weinkauff.

H. and A. Adams and Dr. J. E. Gray have both proposed elaborate series of genera and subgenera of the Olivinæ; most of them, whilst serving to separate specified types, failing entirely to furnish distinctive characters for other species which are intermediate in form. Such names will be registered in my synonymic index, scarcely requiring more particular mention here. I have reversed the usual order of succession of the groups by commencing with the smallest species of the Olives, and proceeding through the Ancillariæ to the Harp-shells: my motive for this is to place next in succession to the Marginellæ those shells which, in size at least, most nearly approach them.

The Olives are exclusively tropical animals.

A number of fossil species have been described; they commence in the Eocene period.

The mantle of the Olive is small, its edges applied to the margin of the aperture, and terminating in a posterior filament which, coiling in the channeled suture of the spire, appears to be useful in keeping the mantle in place. The sides of the foot are wide and reflected more or less on each side over the back of the shell. As in some other mollusks having similarly formed shells, the animal possesses the power of absorbing away the earlier volutions in order to make space for its growth; it also protects the at first very thin embryonal whorls by internal calcification, so that the extreme tip of the spire becomes solid.

At Mauritius, Olives are fished with a line having three or four strings attached, each baited with pieces of fish. This line is thrown into the sea and allowed to remain until the mollusks have become well settled to their feast, and then drawn in. The Polynesian Islanders use the smaller species extensively for the manufacture of ornaments such as bracelets, girdles, etc., piercing them at the spire and then stringing them. They prefer pure white shells for this purpose, and cause the colored markings to disappear by application of heat. Mr. John Brazier, of Sydney, New South Wales, has recently sent me specimens of the beautiful *O. Australis*, thus treated by the natives of New Guinea—they might readily be mistaken for a distinct species.

Olivella biplicata, Sby., appears to have been used as money by the Californian Indians, under the name of col-col, and is still manufactured into necklaces by them.*

Genus OLIVELLA, Swainson.

Olivella is distinguished from *Oliva* by the small size of its shell and more produced spire, by the presence of a large, thin, horny operculum, and the want of eyes. Dr. Paul Fischer has recently attempted to show that another distinction arises from the absorption of the internal whorls of the shell, in the *Olivella*, as in *Auricula*, this absorption not taking place in the typical Olives; however, in *O. reticularis* I have found the interior walls absorbed away so that very little of their substance remains,

* Stearns, Am. Naturalist, xi, 344.

and I presume that it will prove to be the fact that all shells with close volutions are similarly absorbed internally.

The Olivellæ affect sandy localities, burying themselves beneath the surface, upon which they leave no trace. D'Orbigny has observed *O. Tehuelchana* suddenly expand the lobes of its foot, and using them to beat the water like the wings of the pteropods, shoot rapidly through the element.

I follow Weinkauff in considering *Lamprodoma* and *Callianax* subgenera of *Oliva*, but I cannot follow him in dividing what is left of *Olivella* into three groups characterized by the extent and thickness of the columellar callus; that character being decidedly of gradual development through the series of species.

O. VERREAUXI, Ducros. Pl. 14, fig. 41, 42.

Purplish white or yellowish white, with distant, longitudinal, zigzag purple stripes. Length, 5–7 mill.

West Indies

The spire is more produced than in the usual form of *O. nitidula*, the stripes are larger and more distant, there are no traces of bands and it has not the fasciculated markings at the suture and base so common in *nitidula*; still, it is possibly a variety of that protean species. It is the *O. mutica* of Reeve, in part, and probably *O. mica*, Duclos (fig. 42); the latter name has priority, but the identification is not certain.

O. MUTICA, Say. Pl. 14, figs. 43–55.

White, yellowish, bluish ash or deep chocolate, when very dark, the color results from the coalescence of three bands of chocolate-brown, which appear upon the lighter colored, typical specimens; these bands vary in width, the centre one being usually the broadest; sometimes they are all so broad as to appear to be the ground-color, the narrow interspaces forming two white bands. The spire is produced. Length, 10–16 mill.

North Carolina to *West Indies*.

With the typical form I unite *O. pusilla*, Marrat (figs. 45, 46), and *O. rufifasciata*, Reeve (fig. 47).

Var. NITIDULA, Dillwyn. Figs. 48–55.

Spire shorter, shell comparatively wider, bands very faint or obsolete; yellowish or pink-brown with a chocolate or chestnut band at the suture and another bordering the fasciole; these

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bands, in fine specimens, give rise to or break up into fascicles of brown stripes, which are either short, or connected in a zigzag manner over the body-whorl. Length, 10 mill.

South Carolina to *Brazil*.

Ordinarily the distinction of form and coloring serves perfectly to distinguish this from the typical form, yet there occur, although not plentifully, intermediate shells. The stumpy shape of *O. nitidula* is accompanied by a heavy deposit of callus on the columella, which does not occur in the typical form: very probably this difference in growth is due to the surroundings of the mollusk. There is great variation in the development of denticles upon the columella in both forms, these being few or obsolete in some specimens and very numerous in others, occupying nearly the whole length of the inner lip. The following appear to be synonyms of the variety: *O. zigzag*, Duclos (figs. 50, 51), *O. fimbriata*, Reeve (fig. 52), *O. micula*, Marrat (fig. 53), *O. miliola*, d'Orb. (fig. 54), which appears to be the young, and *O. strigata*, Reeve (fig. 55).

O. MANDARINA, Duclos. Pl. 14, figs. 56, 57.

Spire rather elevated, inner lip with a strong callous deposit above, extending upwards to the spire; yellowish white, painted with zigzag longitudinal brown stripes, sometimes spotted or fasciculated below the suture. Length, 10 mill.

China.

I am not acquainted with this species; it appears to be nearly allied to the preceding, but of more solid build. The locality has not been confirmed, and the more recent monographs have simply copied Duclos. *O. Tunguina*, Duclos (fig. 57), is evidently a synonym, but Marrat has erroneously identified with it a specimen of the typical *O. mutica*.

O. ROSALINA, Duclos. Pl. 14, figs. 58–60.

Shell flesh-color with distant zigzag brown markings; columella tinged with rose-color. Length, 7 mill.

West Indies.

I am unacquainted with this species, which, except in its columella being colored, does not seem to differ from *O. Verreauxi*, Ducros. *O. Sowerbyi*, Ducros (fig. 59), and *O. Volutelloides*, Marrat (fig. 60), are synonyms.

O. PETIOLITA, Duclos. Pl. 14, figs. 61–63.

Yellowish white, fasciculated and reticulated with chestnut-color, and with a narrow chestnut revolving band upon the fasciole. Length 12–18 mill.

West Coast of America, from *Panama* to *Mazatlan.*

Much resembles large specimens of *O. mutica*, Say, var. *nitidula*, from the West Indies; but the markings in the typical specimens are irregularly reticulated instead of zigzag. I unite with it *O. intorta*, Carpenter (fig. 62), and *O. mica*, Marrat, not Duclos (fig. 63).

Var. AUREOCINCTA, Carp.

Having an orange zone beneath the suture, appearing purplish within the aperture.

This zone is probably made up of fasciculations worn yellowish on a beach-rolled specimen. I have not seen an authentic example of it and it has not been figured.

O. TERGINA, Duclos. Pl. 14, fig. 67.

Marked like *O. petiolita*, but more vividly; distinguished from it by its swollen, blunt spire, and by being somewhat more effuse at the base. Length, 12–15 mill.

Acapulco, Mazatlan.

O. PLANA, Marrat. Pl. 14, fig. 64.

Shell white, solid, with a heavy callous deposit on the inner lip. Length, 7 mill.

Habitat unknown.

This may be a white variety of the last species, perhaps; it has no distinctive characters and might readily enter several species.

O. ESTHER, Duclos. Pl. 14, figs. 65, 66.

Shell heavy, with short spire, and strong callus on the upper part of the columella. Yellowish white, fasciculated with chestnut at the suture, with a chestnut band upon the fasciole, and minute longitudinal zigzag markings of the same color upon the body-whorl. Length, 6 mill.

Habitat unknown.

A shorter, heavier form than *O. petiolita*, judging from the figure, yet doubtfully distinct: the shells usually known under

this name are certainly *O. petiolita*. *O. columba*, Duclos (fig. 66), may be considered an uncolored variety of this species.

O. ZONALIS, Lam. Pl. 15, fig. 69.

White, with three chestnut revolving bands, about same width as the interspaces. Length, 5–6 mill.

Mazatlan.

O. zanoeta, Duclos (fig. 69), appears to be a larger specimen or magnified figure of this species.

O. COLUMELLARIS, Sowb. Pl. 15, figs. 70–73.

Acuminately ovate, the spire exserted, base broadly effused; columellar lip with heavy callus extending to the top of the body-whorl; commencing at the suture are a number of close, fine, longitudinal striæ, which extend longitudinally to near the centre of the body-whorl, where they become obsolete, and the rest of the whorl is polished; spire and fasciole white, body-whorl almost covered by three broad chestnut or plum-colored bands, the two dividing interspaces of yellowish white being quite narrow. Length, 12–15 mill.

Payta, Peru, in fine sand at low water (Cuming);
W. Columbia; Panama.

O. semistriata, Gray (fig. 71), *O. attenuata*, Reeve (fig. 72), and *O. affinis*, Marrat (fig. 73), are synonyms.

O. NIVEA, Gmelin. Pl. 15, figs. 74–88.

Acuminately oblong, the spire much exserted; body-whorl fasciculated with pink at the suture and at the border of the broad fasciole, with pink maculations, more or less distinct upon the intermediate surface. Length, ·6–·9 inch.

Bahamas; West Indies; Brazil.

Distinguished from *O. mutica*, Say, by its larger size, more elevated spire, and (usually) maculated instead of zigzag markings. The synonymy is enormous, including *O. eburnea*, Lam., *O. parvula*, Mart. (fig. 75), *O. oryza*, Lam. (founded on immature, colorless examples), *O. Guildingi*, Reeve (fig. 76), *O. monilifera*, Reeve (fig. 77), *O. pulchella*, Reeve (fig. 78), *O. dealbata*, Reeve (fig. 79), *O. rubra*, Marrat (fig. 80), *O. fulgida*, Reeve (fig. 81), *O. inconspicua*, Marrat (fig. 82), *O. Reevei*, Ducros (fig. 83), *O. diadocus*, Ads. and Reeve (fig. 84), *O. cuneata*, Marr. (fig. 85), having a more than usually produced spire, *O. scurra*, Marr.

(fig. 86), with two revolving series of maculations, often seen upon immature specimens, *O. myriadina*, Marrat, not Duclos (fig. 87), *O. miliacea*, Marrat (fig. 88), and *O. lactea*, Marrat.

O. MYRIADINA, Duclos. Pl. 15, fig. 90.

Spire prominent, showing six whorls; pure white.
Length, 3–4 mill.

Panama.

This is the smallest of the Olivellas, yet the number of whorls and form of the shell indicate maturity. Duclos gives no locality, but I venture to identify with his species the unfigured *O. inconspicua*, C. B. Ad., from Panama; a species which has been misunderstood by Marrat and Küster—as has also been *myriadina*.

O. JASPIDEA, Gmelin. Pl. 15, figs. 91–94.

Yellowish white, closely fasciculated with dark chestnut at the sutures, and frequently above the fasciole also; intermediate surface closely reticulated and punctated, fasciole strigated with bright chestnut. Length, 12–18 mill.

West Indies.

O. piperita, Marr. (figs. 93, 94), is based on water-worn specimens.

O. TEHUELCHANA, d'Orb. Pl. 15, figs. 95–97; Pl. 16, fig. 1; Pl. 1, fig. 6.

Pellucid white, with an opaque zone at the suture.
Length, 12–15 mill.

San Blas, Patagonia.

With this I unite *O. bullula*, Reeve (fig. 1), said to be West Indian, and *O. pura*, Reeve (fig. 97).

O. FLORALIA, Duclos. Pl. 15, fig. 98; Pl. 16, figs. 99, 100, 2, 3.

Shell narrow, with acuminated spire; spire yellowish- or chestnut-tipped, body-whorl white, or with nearly obsolete, distant chestnut zigzag markings. Length, 8–10 mill.

West Indies.

Distinguished from *O. jaspidea* and *O. nivea* by its narrow form and elongated spire. It is the *O. oryza* of Duclos, not Lamarck, and *O. alba* (fig. 98), and *O. elongata* (figs. 99, 100), of Marrat.

O. LEPTA, Duclos. Pl. 16, figs. 4–11; Pl. 17, fig. 52.

Narrow, with elongated spire; a narrow chestnut line or row of spots beneath the suture, a more distinct interrupted line at the margin of the fasciole, and the intermediate space with zigzag longitudinal lines, base of shell chestnut.

Length, 8 mill.

China Sea; Japan; Philippines.

With this species I include *O. consobrina*, Lischke (unfigured), *O. fabula*, Marrat (figs. 5, 6), *O. lanceolata*, Rve. (figs. 7, 8), *O. pulicaria*, Marrat (fig. 9), *O. exilis*, Marr. (fig. 10), *O. fulgurata*, Ad. and Reeve (fig. 11), and *O. pellucida*, Rve. (fig. 52).

O. FORTUNEI, Adams. Pl. 16, figs. 12–15.

Widely fusiform, maculated or covered with zigzag longitudinal chestnut markings, fasciculated at the sutures.

Length, 8 mill.

China; Japan.

Very similar to the last species in markings, but differing in form. I can see no good reason to separate *O. pulchra*, Marr. (fig. 14), a species described without locality, and I agree with Weinkauff that the unfigured *O. signata*, Lischke, is also very closely allied. Perhaps *O. spreta*, Gould, may belong here; the author never figured it and the type, I suppose, was destroyed by fire, in Chicago; I give a figure which E. A. Smith identifies with this species (fig. 15).

O. LEUCOZONIAS, Gray. Pl. 16, figs. 16, 17.

Orange-yellow, with zigzag chestnut lines and maculations, a white band at the suture, spotted with chestnut, and another white band below the middle of the shell. Length, 12–15 mill.

Senegal.

O. ANAZORA, Duclos. Pl. 16, figs 19–23.

Markings similar to those of the two preceding species, with a form about intermediate between them. I am not able to give any better distinction than the very different locality; indeed, the probability is that the future conchologist, with specimens from more numerous stations, will be able to reduce the number of species of *Olivella* to a very few, each of them presenting certain types of variation in form and coloring.

Length, 8–13 mill.

Xipixapi, W. Columbia; Acapulco; Mazatlan.

With this I unite *O. pulla*, Marr. (fig. 19), *O. versicolor*, Marr. (figs. 20, 21), *O. compta*, Marr. (fig. 22). *O. Capensis*, Sowb. (fig. 23), said to come from the Cape of Good Hope, can only be separated by its doubtful locality.

O. PUELCHANA, d'Orbigny. Pl. 16, figs. 24, 25; Pl. 1, fig. 1.

Violet-brown, more or less maculated, with a narrow white band above the brown-tinted fasciole, and a wider band, maculated with brown, below the suture; aperture dark-colored within. Length, 12–15 mill.

San Blas, Patagonia (d'Orb); *Carthagena, Centr. Am.?* (Reeve).

I fear that this is no more than an extreme color-variety of the preceding species. *O. cyanea*, Reeve, is a synonym, not differing in any respect.

O. UNDATELLA, Lam. Pl. 16, fig. 18; Pl. 17, figs. 35–38; Pl. 33, fig. 31.

Ash-gray, with zigzag chestnut markings, distinct or obsolete, but forming two well-marked revolving bands by the color becoming more emphasized; a yellow band marked with chestnut beneath the sutures; fasciole yellowish, strigated with chestnut; interior and base of columella chocolate-colored.

Length, ·5–·8 inch.

Panama to Mazatlan.

The above description is that of the typical coloration, but the variation in color and markings is so great that it is wonderful that a number of species have not been separated from it. One of the principal variations is a pure white, with indefinite cloudings, maculations or zigzags of chocolate; another white, with pink longitudinal zigzag markings, etc. Fig. 31 represents *O. nedulina*, Duclos.

O. GRACILIS, Brod. and Sowb. Pl. 16, fig. 26; Pl. 17, fig. 27.

Shell rather slender, with elevated spire, and somewhat effuse below; yellowish fawn, with light chestnut zigzag markings and maculations. Length, ·7–·9 inch.

Mazatlan; Lower California.

Distinguished from *O. Anazora*, which inhabits the same region, by its more slender form, elevated spire, greater size and lighter color. *O. tenuis*, Marrat (fig. 27), is probably a juvenile of this species.

O. BÆTICA, Carpenter. Pl. 17, figs. 28–31, 34.

Spire moderately elevated, sharp-pointed, body-whorl oval; red-brown or gray, fasciculated upon a white band at the suture; body-whorl maculated or with zigzag markings, and sometimes a white central band, fasciole white, tip of spire frequently dark-tinted. Length, ·75–1 inch.

Coast of California.

W. M. Gabb identifies this species with the post-pliocene *O. Pedroana*, Conrad (fig. 30), which would have priority, if identical; a still earlier published name is *O. alectona*, Duclos (fig. 34), but I am not convinced that it is the same species. *O. nota*, Marrat (fig. 31), said to come from Vancouver's Island, may be referred to the present species with more confidence. *O. bætica*, is a larger, somewhat more swollen form than *O. Anazora*, but not very different.

O. DAMA, Mawe. Pl. 17, fig. 39.

Spire and fasciole yellowish white, the former ash-tipped, the latter sometimes bearing a band of chestnut maculations, body-whorl long-fasciculated at the suture and closely reticulated over the balance of the surface; interior of aperture and columella violet. Length, ·6–1 inch.

Guaymas, Mazatlan.

This may prove to be a very solid variety of *O. bætica*, Carp., yet possesses distinctive characters in its solidity, shorter spire and violet aperture.

O. PULCHELLA, Duclos. Pl. 17, fig. 40.

A solid shell, sparingly marked with zigzag brown lines, and maculate below the suture. Length, ·18 mill.

Cape Blanco, W. Africa.

A doubtful species from a doubtful locality. Weinkauff considers it identical with *O. leucozonias*, Gray, with which it appears to me to have but little in common. To me it looks more like a worn specimen of *O. dama*.

O. EXQUISITA, Angas. Pl. 17, figs. 32, 33, 41.

Brownish yellow, with three rows of rather distant irregular chestnut maculations, connected by undulating longitudinal lines, which cover the fasciole. Length, 8–12 mill.

N. S. Wales, Australia.

I think it almost certain that *O. Brazieri*, Angas (fig. 41), is merely a larger, less distinctly marked variety of the same species.

O. TRITICEA, Duclos. Pl. 17, figs. 42–44.

Yellowish white, with three revolving rows of chestnut-brown maculations. Length, 10 mill.

New Guinea (Duclos); *Port Jackson, Australia*, 5 fathoms (Ad. and Ang.).

O. pardalis, Adams and Angas (fig. 44), is a synonym.

O. LEUCOZONA, Ad and Ang. Pl. 17, fig. 45.

Yellowish brown, longitudinally reticulated with chestnut, with a bluish white band above the fasciole, tinged with chestnut at the base. Length, 15 mill.

Port Jackson, Australia, 6 fathoms.

Besides the difference in painting, this species has a longer spire and is larger than *O. triticea*.

O. NYMPHA, Ad. and Angas. Pl. 17, fig. 46.

Spire elevated; semipellucid white, with an opaque white band at the suture. Length, 10 mill.

Port Stephens, N. S. Wales, 5 fathoms (Angas); *Mauritius* (B. S. Lyman); *Sydney, N. S Wales*, 25 fms. (Brazier).

O. SIMPLEX, Pease, Pl. 17, figs. 47, 48.

Pure white, shining. Length, 4–5 mill.

Upolu and *Tongataboo, Polynesia.*

O. nitens, Dunker (fig. 48), is a synonym.

O. AUSTRALIS, Tenison-Woods. *Australia.*

I have not seen the description of this species. It is unfigured.

Genus **OLIVA**, Brug.

Subgenus **Lamprodoma**, Swainson.

I commence with this small group rather than with the typical Olives, because it appears to connect the latter with Olivella.

Seven species are enumerated by Weinkauff, and one only of these has the characteristic numerous transverse ridges on the fasciole; the others may be referred to Olivella. *O. volutella* is found in vast numbers over many acres on the sandy beach west of the city of Panama; most numerous where the beach has a

gentle slope midway between high- and low-water mark. Some time after the retreat of the tide, it is found crawling about with much vivacity on the wet sand. The shell, while the animal is moving, is wholly covered with the foot-lobes, and these are entirely concealed with a thick coat of sand. When the first wave of the returning tide strikes them, washing off their coat of sand, they instantly bury themselves.*

O. VOLUTELLA, Lam. Pl. 17, figs. 49–51.

Yellowish, bluish gray, chestnut- or chocolate-colored; the spire and fasciole often yellowish and the body-whorl darker-colored; the latter sometimes faintly marked with longitudinal zigzag strigations; interior of aperture yellowish to chocolate-brown. Length, ·75–1·25 inches.

Panama to *Gulf of California.*

O. rasamola, Duclos (fig. 51), and *O. selasia*, Duclos, are synonyms; the latter founded on a water-worn specimen.

Genus **OLIVA.** (*Typical.*)

The Olives form a very distinct group of mollusks, partaking in the form, and porcellanous coating of their shells, in the character of Cypræa on one side and the Volutes on the other side. Like most shells enveloped in the voluminous foot of the animal, the Oliva has no epidermis, and to the same circumstance is to be attributed the want of an operculum. The shell has an under layer with different pattern of coloring, but this is never exposed, unless in worn specimens, or else artificially by the aid of acids; hence it is evident that, unlike the Cypræa, which changes its pattern upon becoming mature, the two layers in Oliva are simultaneously produced at all stages of its growth.

The Olives are tropical in distribution, the species usually being somewhat restricted in geographical area. They live on sandy flats, burrowing under the surface as the tide retires; they are very active, moving with considerable quickness.

Many of the species are immediately recognized by peculiar, unvarying patterns of coloring; others, again, vary so greatly in this respect that it is almost impossible to define them satisfactorily.

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* Adams, Ann. N. Y. Lyc., 281, 1852.

O. PORPHYRIA, Linn. Pl. 18, fig. 53.

Flesh-color, angularly marked with some large, and many small, crowded, deep chestnut lines; fasciole tinged with violet, with chestnut maculations; interior of aperture and columella yellowish flesh-color. Length, 4 inches.

Panama to *Mazatlan.*

Sometimes very faintly, broadly two- or three-banded with bluish ash.

O. SPLENDIDULA, Sowb. Pl. 18, fig. 54.

Flesh-color, with two broad, interrupted brown bands composed of triangular markings and reticulations, the intermediate surface covered with fainter maculations and spots; base tinged with violet, interior yellowish flesh-color. Length, 2 inches.

Panama.

O. PERUVIANA, Lam. Pl. 18, figs. 55–58.

Shell thick, gibbous, with sometimes a slightly angulated shoulder; flesh-color, covered with numerous chestnut spots, disposed to coalesce into close zigzag longitudinal markings, or into larger and more distant zigzags; sometimes the markings are entirely absent, in others the entire surface is more or less covered with chestnut. Length, 2 inches.

Peru and *Chili.*

O. EPISCOPALIS, Lam. Pl. 18, figs. 59, 60; Pl. 19, figs. 61–63.

White, with chestnut spots and maculations having ash-colored shadings, and sometimes indistinct ashy bands; interior of aperture deep violet. Length, 1·5–2·25 inches.

Indian Ocean; N. Australia; N. Caledonia to *Central Pacific.*

Constantly distinguished by its violet interior. *O. lugubris*, Lam. (fig. 60), is a dark-colored variety; *O. quersolina* (fig. 59), and *O. atalina*, Duclos (fig. 62), are pale or faded specimens. *O. fulva*, Marrat (fig. 63), is pink with light red spots and indistinct bands, roseate within the aperture: I agree with Dr. Weinkauff that it is probably only a variation of *O. episcopalis.*

O. GUTTATA, Lam. Pl. 19, figs. 64–67.

Cream- to flesh-color, with large or small bluish ash-colored spots varying to chestnut or shaded with both colors; suture

and fasciole spotted or streaked with chocolate or violet; interior of aperture orange-red. Length, 1·5–2·25 inches.

Indian Ocean, China, Philippines, Polynesia, Madagascar, Zanzibar.

O. cruenta, Sol., and *O. emicator*, Meusch., have priority over *O. guttata*, but the latter name is so well known that it seems inadvisable to change it. *O. mantichora*, Ducl. (fig. 67), is a monstrous condition of this species, not uncommon among Olives.

O. RUFULA, Duclos. Pl. 20, fig. 79.

Fawn-colored, crossed diagonally or transversely by dark chestnut bands formed by the coalescence of trigonal markings; aperture white within. Length, 1 inch.

Philippines, Moluccas.

O. INFLATA, Lam. Pl. 19, figs. 68–70; Pl. 20, figs. 71–76.

Shell swollen, becoming gibbous in the middle in old specimens, the spire partially sunken below the edge of the body-whorl, the latter produced behind, with a heavy callous deposit; outer lip sometimes enormously thickened; fasciole with a heavy callous ridge, independent of the columellar plaits; color white or yellowish, more or less dotted, blotched or banded, or lightning-streaked with brown-orange, chestnut, chocolate or bluish ash, sometimes variegated with two or three colors at once, sometimes almost or entirely covered with dark color, occasionally pure white; aperture white within. Length, 1·5–2 inches.

Red Sea; Ceylon; E. Africa; Madagascar; Seychelles.

The variability of this species in coloring is exceedingly great. When old, the best characters are derived from the inflated form, sunken spire, callous thickenings and columellar ridge; but less developed specimens are so close to some of the succeeding species that their distinction appears to be somewhat doubtful.

O. lacertina, Quoy (figs. 75, 76), is a somewhat peculiarly colored young shell of this species; I have a similar specimen before me.

O. TIGRINA, Lam. Pl. 20, figs. 77, 78, 80.

Light yellowish or ash-color, profusely marked with small blue-gray spots, occasionally coalescing into short zigzags; aperture and columella white within. Length, 1·75–2·25 inches.

Ceylon; Java; Philippines; East Africa.

The markings are similar to varieties of the preceding species, from which it is somewhat doubtfully distinguished by its less inflated form, spire not so much sunken, fasciole without the callous ridge, etc. As in *inflata*, the color varies, but not so frequently, perhaps; I figure a dark-hued specimen (fig. 78). *O. glandiformis*, Marr. (fig. 80), is at least identical as to the figure I copy; the two additional figures given by Marrat appear to be more similar to *O. elegans*, Lam.

O. ELEGANS, Lam. Pl. 20, figs. 81–83; Pl. 21, figs. 84–88.

Shell olive, or brownish yellow, closely covered with zigzag lines or punctations, or both, varying from chocolate to nearly black, and frequently shaded with orange, and bluish ash; sometimes there is an overlaid darker series of crowded zigzags forming two irregular bands, or even almost covering the shell; fasciole tinged with saffron-color. Length, 1·5–1·75 inches.

Indian Ocean to *Central Polynesia.*

Generally smaller, darker-colored and not so much inflated as *O. tigrina*, but I have hesitated long whether to treat it as a synonym of that species or as distinct; its characteristics are certainly insufficient. I am compelled to place here as synonyms several so-called species which have heretofore been considered distinct, but the large number of specimens before me covers every grade of variation between them; the tinted fasciole appears to be a feature common to all. These synonyms are *O. flava*, Marr. (fig. 83), *O. infrenata*, Marr. (fig. 84), and *O. Hemiltona*, Duclos (fig. 85).

Var. TRICOLOR, Lam. Figs. 86–88.

The zigzag painting is more or less broken up into spots, and is blue, olive or chocolate shaded with orange, disposed upon a light ground. This has usually been considered a distinct species, but is connected with the type by insensible gradations. *O. tringa*, Duclos (fig. 88), is probably the young state.

O. CALOSOMA, Duclos. Pl. 21, fig. 89.

Pure white, or with slight indications of three bands composed of occasional triangular brown markings. Length, 27 mill.

China.

O. AVELLANA, Lam. Pl. 21, fig. 90.

White, with short triangular reddish markings, forming two interrupted bands; aperture white within. Length, 30–40 mill.

New Guinea.

O. LECOQUIANA, Ducros. Pl. 21, figs. 92, 93; Pl. 33, fig. 30.

Shell marked and banded with chocolate-colored triangular markings, as in *O. elegans*, the fasciole similarly stained with saffron-color; form somewhat more bulbous; interior of aperture violaceous. Length, 35 mill.

China

The colored aperture is the best distinctive character. *O. similis*, Marrat (fig. 92), appears to be a minor form of this species; and *O. calosoma*, Marr., not Duclos (fig. 30), is a still smaller form; *O. stellata*, Ducl. (fig. 93), may also probably be referred here.

O. BULBIFORMIS, Duclos. Pl. 21, figs. 94–96.

Shell short and very bulbous, colored as in *O. elegans* externally, but the interior of the aperture chocolate-brown, or violaceous brown. Length, 30 mill.

Solomon Is.; Moluccas.

The form is typically very distinct from all species related in external coloring, yet I fear that it will be found to graduate into the preceding species.

O. FUNEBRALIS, Lam. Pl. 21, figs. 97–99; Pl. 22, figs. 100–5.

Shell rather more cylindrical than the preceding species, with the usual color-markings of the group. It differs insufficiently from *O. Lecoquiana* in the lower band of the fasciole being deeply strigated with chocolate; aperture white or slightly bluish or chocolate within. Length, 1–1·8 inches.

Ceylon; Moluccas; New Guinea; Viti Islands.

O. leucostoma, Duclos (figs. 98, 99), *O. inornata*, Marrat (fig. 100), *O. propinqua*, Marrat (fig. 1) and *O. lutea*, Marr. (fig. 2), probably, are synonyms.

Var. DACTYLIOLA, Duclos. Figs. 3–5.

Shell smaller, more regularly marked with zigzag lines and spots. Length, ·8–1 inch.

To this form may be united *O. picta*, Reeve (fig. 4), and probably *O. blanda*, Marr. (fig. 5).

O. MUSTELLINA, Lam. Pl. 22, figs. 6–14.

Cylindrical, the aperture long and narrow, the spire very short, sharp-pointed; pale yellowish, covered with light chestnut fulgurations, interior deep violet. Length, 1–1·25 inches.

Singapore; Japan.

Distinguished at once by its cylindrical form, light coloring, and violet interior. The following may be considered synonymous, being mostly slight variations in form, or dead and faded specimens: *O. caroliniana*, Duclos (fig. 7), *O. angustata*, Marr. (fig. 8), *O. lævis*, Marr. (fig. 9 , probably, *O. scitula*, Marr. (fig. 10), *O. grata*, Marr. (fig. 11), *O. Pacifica*, Marr. (fig. 12), *O. arctata*, Marr. (fig. 13), and *O. cana*, Marr. (fig. 14). Possibly *O. neostina*, Marrat, not Duclos, and *O. Jayana*, Ducros, also belong here.

O. NEOSTINA, Duclos. Pl. 22, figs. 15–20.

Somewhat less cylindrical than *O. mustellina* and larger; color varying from light yellowish white to chocolate, the lighter varieties with zigzag brown lines; aperture white or slightly bluish within. Length, 1·25–1·5 inches.

Australia; New Guinea.

This bears some resemblance to the preceding, and is more closely related to the following species, of which it may possibly be a minor variety. I am not at all satisfied as to its claim to distinctness. *O. Octavia*, Duclos (fig. 15), is usually considered synonymous.

O. MAURA, Lam. Pl. 23, figs. 21–26; Pl. 1, fig. 5; Pl. 34, fig. 54.

Light olivaceous, orange-brown, chestnut or chocolate, sometimes nearly black, often more or less distinctly banded with lines of different shades of the same color, the lighter-colored specimens especially, frequently marked with chestnut zigzag lines and spots; interior of aperture and columella white; fasciole mostly colored with the prevailing tint.

Length, 1·75–2·25 inches.

Indo-Pacific and *Austro-Pacific Provinces.*

One of the commonest and most variable species of the genus. It may be distinguished from *O. tigrina*, which it often resembles greatly in painting, by its larger size and more cylindrical form. Fig. 26 represents *O. Macleaya*, Duclos.

O. SANGUINOLENTA, Lam. Pl. 23, figs. 27–29; Pl. 24, figs. 30, 33.

Cylindrically oblong, with short, partly sunken spire; cream-color or light olive, covered with very numerous, generally minute and close zigzag chocolate lines and reticulations, and which often form a subsutural and a median band; interior of aperture fleshy white; columella and fasciole richly marked with orange-red. Length, 1·75–2·25 inches.

Mauritius, Indian Ocean, Philippines, New Caledonia.

The form is the same as in *O. maura*, but the very close, minute pattern of coloring and brilliant columella will distinguish it. *O. evania*, Duclos (fig. 29), is a synonym, and *O. pindamella*, Duclos (fig. 33), is believed to be a young, rubbed specimen of this species. *O. Keeni*, Marrat (fig. 30), partakes of the characters of the next species, but its closest relationship is with *O. sanguinolenta*.

O. IRISANS, Lam. Pl. 24, figs. 31, 32, 34–42; Pl. 25, figs. 43–49; Pl. 26, figs. 50–54; Pl. 27, figs. 55–60; Pl. 1, fig. 3.

Shell flesh-colored, orange-brown or chocolate, with zigzag brown lines, shaded with ash and orange, and faintly or interruptedly two-banded; fasciole slightly tinged with orange; interior of aperture white or flesh-color or faintly bluish.

Length, 2–3 inches.

Mauritius, Ceylon, Java, Philippines, Australia, Polynesia.

Reeve, Marrat and Weinkauff have distinguished a number of species which I am compelled to treat as synonyms, because the large suite of specimens before me shows that these are partly merely transition forms and partly distinctions based on size only. A rather narrow cylindrical and small variety has been selected for *O. irisans* (figs. 34–36), and a larger growth, not so cylindrical, for *O. zeilanica*, Lam. (fig. 37), with which *O. Philantha*, Duclos (fig. 38), is synonymous; *O. galeola*, Duclos (fig. 39), is also a synonym.

Var. CONCINNA, Marrat. Figs. 40–45.

A somewhat smaller shell than *O. irisans*, differing principally in the interior of the aperture being blue or violet. With this variety must be united *O. cylindracea* (fig. 42), *O. clara*, (fig. 43), *O. lignaria*, (fig. 44), and *O. ornata* (fig. 45), all of Marrat.

Var. TREMULINA, Lam. Figs. 46–52.

This shows the same range of variation in color as the typical *irisans*, and only differs in its greater size and solidity.

Length, 3·5–4 inches.

The synonyms are *O. nobilis*, Reeve (fig. 48), *O. tenebrosa*, Marr. (fig. 49), *O. fumosa*, Marr. (fig. 50), and *O. olympiadina*, Duclos = *O. pica*, Lam. (figs. 51, 52).

Var. ERYTHROSTOMA, Lam. Pl. 1, fig. 3; Pl. 26, figs. 53, 54; Pl. 27, figs. 55–58; Pl. 34, fig. 53.

Shell cream- or flesh-color, with violet or red zigzag longitudinal lines, which are very irregular and rather distant, and frequently shaded with orange; there are two bluish violet interrupted bands; interior of aperture bright orange-red.

Length, 2–3 inches.

Ordinarily the coloring of this form is sufficiently distinctive, so that I hesitated whether to give it specific or varietal rank; I am induced to favor the latter because a number of specimens are before me which are intermediate between this and the last variety: thus, some have the external coloration of *erythrostoma*, more or less, with the aperture white within, others are colored like *tremulina* (some of them uniform dark chocolate), with the aperture varying from the faintest blush to deep orange-red.

The synonyms are *O. magnifica*, Ducros = *O. tremulina* (in part), Marrat (fig. 54), *O. azemula*, Duclos (fig. 55), *O. mazaris*, Duclos (fig. 56), *O. sylvia*, Duclos (figs. 57, 58), and *O. ponderosa*, Duclos (Pl. 34, fig. 53), a thick-growing form.

Var. TEXTILINA, Lam. Pl. 27, figs. 59, 60.

Cream-colored, very light yellowish or pink, closely reticulated by zigzag chestnut markings, usually forming a superior and a median band of darker reticulations; aperture white or light flesh-color. Length, 2–3 inches.

This is also typically a very distinct shell, in its close reticulated pattern and in the bands being formed of darker reticulations and not of markings confluent into blotches; yet in some specimens these blotches appear, and in others they spread more and more so as to form a complete series from the type to the uniformly chocolate-colored shell; on the other hand,

the reticulations become lighter, verging on pink, more sparse, and so merge into *erythrostoma*. In describing one of the varieties of this protean species, Weinkauff predicted that they would some day all "be placed in one basket;" this I have been compelled to do; but I have still retained as varietal the names of the principal forms.

O. ARANEOSA, Lam. Pl. 27, figs. 61, 62; Pl. 28, figs. 63–74; Pl. 29, figs. 75–83.

Oval-cylindrical, a little constricted around the upper part of the body-whorl, and sometimes with a faintly angulated shoulder; the spire prominent; cream-color, overlaid with a closely reticulated pattern of brick-red to chocolate, and fasciculations of the same color at the sutures; interior cream-white or lightly tinted blue or chocolate. Length, 1·5–2·25 inches.

Panama to *Cape St. Lucas L. Cal.*

Is a larger, heavier, less cylindrical species than *O. reticularis* of the West Indies—of which it is the West Coast representative: the two are very probably of common derivation. The figures cited by Lamarck well represent this species—which is better known under the name of *O. Melchersi*, Menke. Weinkauff having restored the Lamarckian name, I follow him, but would otherwise have hesitated to drop a well-known designation in favor of one which is in fact almost unknown. The other synonyms are *O. oblonga*, Marr. (fig. 63), *O. Pindarina*, Duclos (fig. 64), *O. subangulata*, Phil. (fig. 65), an angulated form, *O. fuscata*, Marr. (fig. 66), a dark variety, *O. oriola*, Duclos (fig. 67), which is somewhat lighter than *fuscata*, *O. harpularia*, Lam. (fig. 68), described from a worn shell, *O. intertincta*, Carpenter (fig. 69), a juvenile, and *O. violacea*, Marrat (fig. 70).

Var. VENULATA, Lam. Figs. 71–73.

Shell shorter, more swollen around the upper part; spire shorter; painting usually darker, the reticulated pattern more or less broken up into nebulous spots. The synonyms are *O. punctata*, Marr. (fig. 72), and *O. Pindarina*, Marr., not Duclos (fig. 73).

Var. JULIETTÆ, Duclos. Pl. 29, figs. 74–82; Pl. 21, fig. 91.

Shell very bulbous, with short spire; thick. Length, 2 inches.

Typical examples are so different in form from *O. araneosa*, while the painting is more nebulous, that they would readily be distinguished as a species, but intermediate specimens are not wanting. This form also has several synonyms : *O. Timorensis*, Duclos (figs. 75, 76), said to come from Timor—which is evidently an erroneous habitat; one of these specimens is dark colored, resembling *O. Cumingii*, Reeve (fig. 77), which must also be considered a synonym. *O. Mariæ*, Ducros (fig. 78), is a small specimen apparently, of this species; Kuster figures a larger shell under the same name (Pl. 21, fig. 91); *O. obesina*, Duclos (fig. 79), *O. porcea*, Marrat (fig. 80) and *O. graphica*, Marr. (fig. 81), are also to be placed here; and I am inclined to include *O. truncata*, Marr. fig. 82), although it is said to come from the Cape of Good Hope. I believe this habitat to be erroneous; moreover a specimen received from Mr. Marrat is undoubtedly a young *Juliettæ*.

Var. POLPASTA, Duclos. Fig. 83.

Light olive, the reticulations broken up into nebulous spots and occasional arrow-head markings; the fasciculations at the sutures spread from centres at regular distances, between which the shell is colored yellowish white. Length, 1·25–1·75 inches.

The form is much like var. *Juliettæ*, from which it is to be distinguished by its smaller size, darker color, and especially by its gay alternation of white spaces and fan-like chocolate fasciculations at the sutures—which are none of them stable characters.

O. ANGULATA, Lam. Pl. 29, fig. 84.

Ovate, ventricose, very thick, angularly swollen above the middle; ash-white mottled and spotted with olive and gray, and with occasional chestnut transverse streaks and zigzag markings; lip and columella flesh-pink. Length, 2·5–3·5 inches.

Panama to *Guaymas*.

The young shell is not angulated, and approximates to the last species in form, and somewhat in exterior coloring, but may be distinguished at once by the color of the columella and interior.

O. SCRIPTA, Lam. Pl. 30, fig. 85.

Cylindrically oblong, spire rather short, columellar plaits

numerous; yellowish brown, with pale chestnut zigzag markings and reticulations, and two bands of interrupted dark chestnut hieroglyphic figures; bluish white within the aperture.

Length, 1·5–2 inches.

China, Australia.

O. FUSIFORMIS, Lam. Pl. 30, figs. 86–89; Pl. 34, fig. 56.

Shell thick, oval, swollen posteriorly, the spire prominent; white, with longitudinal zigzag chestnut figures, sometimes two banded, and sometimes the chestnut-color nearly covers the shell by the coalescence of the markings; white within the aperture. Length, 1·5–2·25 inches.

West Indies.

With this are to be united *O. obesina*, Ducl., *O. Aldinia*, Duclos (fig. 88), *O. onisca*, Ducl. (fig. 87), *O. mercatoria*, Marr. (fig. 56)—at least in part (one of his figures resembles *O. reticularis* more closely), *O. bullata*, Marr. (fig. 89), and *O. reclusa*, Marr., the last two not fully grown.

O. RETICULARIS, Lam. Pl. 30, figs. 90–95; Pl. 31, figs. 96–4; Pl. 34, fig. 57.

White, with pink or chestnut zigzag longitudinal markings, and fasciculations of the same color around the suture; sometimes there are faint bands, and occasionally the whole surface is more or less covered with chestnut; aperture white.

Length, 1·5–2·25 inches.

Florida, West Indies.

Among the synonyms may be cited *O. ustulata*, Lam. (fig. 92), *O. tisiphona*, Duclos (figs. 93, 57), *O. memnonia*, Ducl. (fig. 94), *O. Sowerbyi*, Marrat (fig. 95), *O. figura*, Marr. (fig. 96), *O. Bewleyi*, Marr. (fig. 97), *O. Jamaicensis*, Marr. (fig. 98), *O. hepatica*, Marr. (not Lam.) = *O. bifasciata*, Weinkauff (fig. 99), *O. formosa*, Marr. (fig. 100), *O. nivosa*, Marr. (fig. 1). The white variety of the last is equivalent to *O. olorinella*, Duclos (fig. 2), which Weinkauff has erroneously made a synonym of *O. ispidula*, Linn. *O. brunnea*, Marrat (fig. 3), is said to come from Borneo, but I have before me undoubted West Indian specimens precisely like it; *O. oriola*, Ducl. (fig. 4), is nearly equivalent to the last.

O. LITTERATA, Lam. Pl. 31, figs. 5–7.

Shell gradually attenuated at each end, with produced spire;

over the usual zigzag markings, reticulations and sutural fasciculations, are two bands of hieroglyphic characters, which are usually well marked. Length, 1·5–2·5 inches.

Beaufort, North Carolina to *Florida; West Indies; Bahia, Brazil.*

The attenuation of the posterior part of the shell, distinguishes this from *O. reticularis*, with which some of its varieties are nevertheless too closely allied; the same character and greater size distinguish it from *O. scripta*, Lam., which has very similar painting. *O. circinnata*, Marr. (fig. 6), is one of the connecting forms referred to above. *O. multiplicata*, Reeve (fig. 7), is probably also a synonym.

O. STAINFORTHII, Reeve. Pl. 31, fig. 8.

White, faintly sprinkled with gray-shaded reddish dots, and marked with a very few blackish blotches disposed in two bands, unspotted next the sutures, columella and interior of aperture ivory-white. Length, 1 inch.

Habitat unknown.

A very doubtful species, resting solely on the type specimen—from which the colors have probably been worn off.

O. HIEROGLYPHICA, Reeve. Pl. 31, fig. 9.

Ivory-white, encircled by three rows of pale brown hieroglyphic markings. Length, ·6 inch.

Habitat unknown.

A doubtful species.

O. POLITA, Marrat. Pl. 32, fig. 10.

Yellowish, with white and chestnut maculations; pallid violaceous within the aperture. Length, 20 mill.

West Indies.

Weinkauff thinks that this is perhaps a young *O. litterata*, but it appears to me to differ greatly from that species, both in form and markings. I have not seen specimens. It may be a variety of the next species.

O. FLAMMULATA, Lam. Pl. 32, fig. 11; Pl. 34, fig. 55.

Yellowish white, with reticulations and angular markings of chestnut-brown, and occasional white maculations; interior of aperture whitish or tinged with purple. Length, ·9–1·5 inches.

West Africa, Senegal, Cape Blanco.

O. Duclosi, Reeve. Pl. 32, figs. 12–17.

Shell with close reticulations and triangular markings of chestnut, with narrow, interrupted sutural and median bands, aperture yellowish brown. Length, ·9–1·25 inches.

China, Philippines, Australia, New Zealand, Polynesia.

O. flammulata, Lam., is too closely allied to varieties of this species; I have hesitated to separate them. *O. lentiginosa*, Reeve (fig. 14), is merely a lighter-colored specimen; *O. esodina*, Ducl. (fig. 15) and *O. Natalia*, Ducl. (fig. 16), are also synonyms, and I suppose that *O. Sandwichensis*, Pease (fig. 17), may also be added. This is the *O. jaspidea*, Duclos (not *Olivella jaspidea*, of Gmelin), under which name it is as generally known as that of Reeve.

O. Thomasi, Crosse. Pl. 32, fig. 18.

Heavy, oblong, with rather short spire; flesh-color, obscurely two-zoned, numerously punctate, maculated with chestnut at the suture; yellowish white, obscurely bifasciate within the aperture. Length, 28 mill.

Tahiti.

Is possibly a variety of *O. flammulata*, judging from the figures and description.

O. australis, Duclos. Pl. 32, figs. 19–20.

Spire elevated; white or yellowish, with light chestnut or purple-ash zigzag lines; interior of aperture white, maculated with purple near the margin. Length, ·75–1 inch.

Australia, New Guinea.

Mr. John Brazier informs me that the natives of New Guinea place these shells on red-hot ashes, which discharges the coloring, leaving them entirely white; in which condition they are strung to make neck-ornaments and girdles. *O. caldania*, Duclos (fig. 20) is a synonym.

O. paxillus, Reeve. Pl. 32, figs. 21–23.

Shell thick, stout, cone-shaped, with a high spire; white, with triangular brown markings, forming interrupted bands, and spots beneath the sutures and on the fasciole; interior of aperture sometimes two or three banded. Length, ·85–1·1 inches.

Japan, Philippines, Australia.

The form of this species is its best characteristic. *O. ozodona*,

Duclos (fig. 22), and *O. nitidula*, Duclos, not Gmelin (fig. 23), are to be united with it.

O. PANNICULATA, Duclos. Pl. 32, figs. 24, 25.

White, with faint longitudinal zigzags, and interrupted narrow bands at the suture and below the middle. Length, ·75 inch.

Madagascar.

O. ANIOMINA, Duclos. Pl. 32, figs. 26, 27.

Yellowish white, with chestnut-red zigzags and nebulous markings. Length, ·75–1·1 inches.

Japan.

O. rufopicta, Weinkauff (fig. 27), appears to be the same species.

O. KALEONTINA, Duclos. Pl. 32, fig. 28.

Purple-fawn, interruptedly spotted and variegated with reddish chestnut, with oblong spots beneath the sutures; columella and interior of the aperture purplish white. Length, 33 mill.

Bay of Guayaquil and *Galapagos Is.;* 6 to 12 fms.—Cuming.

O. BRODERIPII, Ducros. Pl. 33, fig. 33.

Shell rather convex, with short spire; yellowish brown, closely reticulated with chestnut; aperture chocolate-brown within. Length, 30 mill.

Habitat unknown.

A doubtful species, supposed to differ from *O. ispidula* in its wider form and more convex sides.

O. PYGMÆA, Reeve. Pl. 32, fig. 29.

Orange-yellow, clouded and dotted with red-brown; columella and interior of aperture white. Length, 12 mill.

Habitat unknown.

Except in the color of the interior, it resembles *O. ispidula:* it is a doubtful species.

O. ISPIDULA, Linn. Pl. 33, figs. 34–43, 29, 38.

White, ash, yellow, brown, chestnut or chocolate-colored, without markings, or with nebulous spots, zigzag lines or reticulations, often with a band near the top of the body-whorl; columella white; interior chocolate-colored. Length, 1–1·5 inches.

Indian Ocean, Philippines, Fiji Islands, etc.

It is impossible to enumerate the shades and patterns of

coloring of this species; its chocolate-colored interior is its most characteristic feature, whilst the form is also tolerably constant. Banded varieties may be recognized by the band being on the upper part of the whorl, but not attaining the suture. There are several synonyms, as follows: *O. flaveola*, Ducl. (fig. 40), *O. variabilis*, Gray, *O. candida*, Lam. (fig. 41), *O tigridella*, Duclos (figs. 42, 29, 28), *O. egira*, Ducl. (fig. 43).

O. SIDELIA, Ducl. Pl. 33, figs. 27, 44–50.

Yellowish or orange-color, sometimes without markings, but usually with more or less regular narrow zigzags of chestnut, and occasionally with clouds of the same color; interior of aperture bluish white to violet-red. Length, ·7–·9 inch.

China, Philippines, New Guinea, Viti Is., Madagascar.

I unite here, under the oldest name, a number of species heretofore considered distinct; the dark unspotted variety being the *O. volvaroides*, Ducl. (fig. 45), and immature specimens (one of which is partly covered with chestnut), the *O. sidelia*, Ducl. (figs. 44, 27). The mature painted shells are: *O. athenia*, Ducl. (fig. 46) = *O. mucronata*, Marr. (fig. 47), *O. lepida*, Ducl. (fig. 48), *O. todosina*, Ducl. (fig. 49), and *O. faba*, Marr. (fig 50).

O. TESSELLATA, Lam. Pl. 33, fig. 51.

Creamy white to yellowish brown, with irregular distant ash- and chestnut-shaded spots covering the surface; interior, and columella deep violet. Length, 1 inch.

Maldives, Java, Philippines, Australia, New Caledonia.

O. CARNEOLA, Gmelin. Pl. 33, fig. 52.

White, banded with rich orange-color, the bands usually a broad one above and below and a narrow one in the middle, color sometimes shading into red, violet or olive; fasciole and aperture white. Length, ·7–·9 inch.

Java, Philippines, New Caledonia, Central Polynesia.

Subgenus **Callianax**, H. and A. Adams.

O. BIPLICATA, Sowb. Pl. 34, fig. 58.

Bluish gray, sometimes light brownish or olivaceous, fasciole and interior of aperture violaceous; columella biplicate at the base. Length, ·75–1·25 inches.

California.

O. ORBIGNYI, Marrat. Pl. 34, fig. 59.

Purple-brown, with two narrow revolving white bands below the middle; interior of aperture orange-red. Length, ·9 inch.

Patagonia.

Subgenus **Agaronia**, Gray.

O. HIATULA, Gmelin. Pl. 34, figs. 60–67; Pl. 35, figs. 68–70; Pl. 36, fig. 26.

Shell thin, with raised spire and large aperture, somewhat dilated below; columellar folds very oblique; cream-color, light brown or olivaceous, frequently nebulously painted or zigzagged longitudinally with brown; the fasciole lighter or darker colored, without markings; the interior varying from cream-color to chocolate, sometimes showing the external markings.

Length, 1·5–2·5 inches.

West Coast of Africa; Panama to *Mazatlan.*

The occurrence of this species numerously at these two distant points has much bothered conchologists; the W. African specimens were called *O. hiatula*, and the W. American specimens, supposed to differ somewhat in form, have been distinguished as *O. testacea*, Lam. P. P. Carpenter, in his monograph of Mazatlan shells, acknowledges that specimens from both localities vary considerably in form and are in this respect indistinguishable, but he attempts to make differential characters in the coloring of the fasciole, and tinting of the plications; in both which respects specimens before me, with undoubtedly correct habitats, completely contravene his assertions; indeed I have Mazatlan specimens, received from Carpenter himself, which fully exhibit the features which he believes to be peculiar to the W. African form, whilst Gambian specimens show the W. American colorings. Figs. 60–63 show *O. hiatula* and fig. 65 *O. testacea*, Lam.

Other synonyms are: *O. pallida*, Swains. (fig. 64), *O. nitellina*, Duclos (fig. 26), *O. Steeriæ*, Reeve (fig. 68), *O. cincta*, Reeve (fig. 70), a juvenile banded variety, *O. indusiaca*, Reeve (fig. 66), erroneously said to inhabit the mouth of the River Indus, and *O. Ancillarioides*, Reeve (fig. 69). *O. Lamarckii*, Swainson, and *O. propatula*, Conrad, are so completely typical, that copies of their respective figures would serve no useful purpose.

O. ACUMINATA, Lam. Pl. 35, figs. 71–80; Pl. 1, fig. 4.

Yellowish, fawn, or ash-gray, irregularly marked with zigzags

and maculations, or faintly nebulous, the markings being nearly obsolete; suture sometimes with fasciculations, frequently reduced to a row of spots, still more frequently unspotted; fasciole and fasciolar band yellowish or fawn-color, sometimes with faint, close, orange-red strigations; columella white; interior of aperture white, maculated with chestnut on the lip-border.

Length, 1·5–3 inches.

Senegal, Gambia, Java, Philippines, Australia.

Dr. Weinkauff complains that his predecessors in attempting to separate *O. acuminata* and *O. subulata*, have mistaken them one for the other, and he has taken the trouble to unravel the intricate synonymy, in order to thoroughly distinguish the two species. Having carefully examined their respective characters both in descriptions, figures and specimens, I am convinced that no good reason exists for treating them as distinct, and that several additional "species" must likewise be added to the synonymy. Fig. 71 represents *O. subulata*, Lam., as defined by Weinkauff; it appears more slender, with more elevated spire than some of the figures representing *O. acuminata*, but every intermediate form may be selected from the specimens before me. I place here *O. modesta*, Reeve (fig. 77), a young shell, *O. annotata*, Marr. (fig. 78), and *O. carita*, Marr. (figs. 79, 80), also juveniles, and *O. Barthelemyi*, Ducros (fig. 76).

O. Labuanensis, Marrat. Pl. 35, fig. 81.

Yellowish white to orange-color, with an orange-red or brown broad band covering the lower half of the body-whorl, sutures fasciculated with brown. Length, 1–1·25 inches.

Borneo.

This may be only a variety of *O. nebulosa*, yet I think it has as good claims to specific distinction as most of the species.

O. ligneola, Reeve. Pl. 35, fig. 82.

Cone-shaped; chestnut, the fasciole lighter, with chestnut markings, columella white, aperture bluish. Length, 1 inch.

Habitat unknown.

I am not acquainted with this species; Marrat has omitted it, and Weinkauff has copied Reeve's figure and description.

O. nebulosa, Lam. Pl. 35, figs. 83, 84.

Subcylindrical, spire moderately elevated; cream-color, with

zigzag ash or olive lines, merging into reticulations; fasciole orange-brown, mottled with chestnut. Length, 1·5–2 inches.

Ceylon; Australia?; W. Africa.

This species has been confounded with *O. gibbosa*, Born, and has been supposed to be the young of that species; the young *gibbosa*, however, is much more inflated, and may be readily separated from *nebulosa* of the same size; the coloring is the same in both species. *O. intricata*, Marrat (fig. 84) is a synonym.

O. GIBBOSA, Born. Pl. 36, figs. 85–87.

Shell heavy, gibbous, the columella callous, especially the upper part; spire also callously thickened; cream-colored, body-whorl with zigzags and reticulations varying from ash-gray to orange and chocolate; fasciole yellowish, maculated with brown; columella and interior of aperture whitish.

Length, 1·5–2·5 inches.

Ceylon; W. Africa.

Like Olivancillaria in form, but the sutured channel remains distinct on all the whorls of the spire.

Subgenus **Olivancillaria**, d'Orb.

O. BRASILIANA, Lam. Pl. 36, fig. 88; Pl. 1, fig. 2.

Fulvous fawn, streaked with white, with short transverse gray hair-lines; spire callous, fasciole and interior of aperture orange-brown. Length, 2–2·5 inches.

Brazil, La Plata, Patagonia.

The body-whorl has sometimes obscure brownish fasciculations below the suture.

O. DESHAYESIANA, Ducros. Pl. 86, figs. 89, 90.

Shell smaller, more swollen above than *O. Brasiliana*, and with a proportionally heavier posterior callus. Color same as in *O. Brasiliana*. Length, 1 inch.

Brazil.

The form of this shell is nearly intermediate between the last and the next species; it is much smaller than either, yet appears to be mature. *O. ovata*, Marr. (fig. 90), is synonymous.

O. AURICULARIA, Lam. Pl. 36, figs. 91–94.

Brown or lead-color, sometimes, in the young shell with zigzag

faint brown markings; fasciole and interior of aperture yellowish brown to chocolate. Length, 1·5–1·75 inches.

Brazil to *Patagonia; W. Africa.*

The young shell is much narrower in form, the contorted expanded lip and heavy columellar callus indicating the adult condition. *O. aquatilis*, Reeve (fig. 93), and *O. contortuplicata*, Reeve (fig. 94), are both young shells; *O. claneophila*, Duclos (fig. 92) = the adult form.

O. NANA, Lam. Pl. 36, figs. 96–100.

Conical, the upper fourth part of the body-whorl overlaid with a yellowish callus, the fasciole also yellowish and obscurely maculated, rest of body-whorl cream-color with chestnut longitudinal fulgurations, often broken up into nebulous spots; columella white, interior of aperture exhibiting the external colors through the shell. Length, ·75 inch.

Gabon, W. Africa; So. Africa; Madagascar.

The West Indies have been cited as habitat for this species, I think erroneously. *O. zenospira*, Ducl. (fig. 79), and *O. millepunctata*, Duclos (figs. 98, 99), are synonyms.

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Subfamily ANCILLARIINÆ.

Genus **MONOPTYGMA**, Lea.

Several systematists have confounded this genus with Monoptygma, Gray—an entirely different group. The type, although a very small shell, perfectly exhibits the generic characters, but Lea's second species belongs to Actæonidæ. Chilotygma, H. and A. Adams, must, according to the description, become a synonym; but it may well be doubted whether its only species and specimen (therefore the only recent species of Monoptygma), is not a monstrosity.

M. ALABAMIENSIS, Lea. (Pl. 3, fig. 23.) Fossil.

Eocene, *Alabama.*

M. EXIGUA, Sowb. Pl. 37, fig. 1.

Yellowish white, very shining, callous; callously ridged on the body-whorl. Length, 12 mill.

Habitat unknown.

This specimen formed part of the Cumingian collection.

Genus **ANCILLARIA**, Lam.

The animal of Ancillaria is voluminous, covering the entire shell with the exception of the spire. The head, which is entirely concealed by the reflected portions of the foot, consists of a short cylindrical, inflated, annulated proboscis, above which is a semilunar veil formed by the dilatation and union of the tentacles; there is no indication of eyes. The mantle is produced anteriorly into a long siphon. The foot is large and bursiform, the side-edges being greatly extended and reflected over the shell, meeting in the middle on the back. As in Oliva, it is deeply fissured anteriorly, forming a semilunar disk before the head, divided by a deep longitudinal groove into two lateral, triangular lobes, acuminated transversely; posteriorly it is bilobed, and is either without an operculum, or is provided with a thin, horny unguiform one, with apical nucleus, semilunar growth-lines, and an oval muscular impression.

The Ancillariæ resemble the Olives in their habits, dwelling among the smooth sands in which they frequently bury themselves. They crawl with a quick, sliding motion, and as they glide briskly along, the shell is enveloped in the alar expansions of the foot, which overlap each other slightly in the middle, and extending considerably beyond the spire, form posteriorly a loose, open sack; anterior to these lobes the tubular cylindrical siphon is visible, directed upwards and backwards, and even laid flat upon the back.

The Ancillariæ have been monographed by Sowerby in the Thesaurus Conchyliorum, by Reeve in Conchologia Iconica, and by Weinkauff in Küster's Conchylien Cabinet. The last authority enumerates forty-six species, some of which he considers doubtful. A very careful consideration of these forms has induced me to reduce the number of species considerably. They are tropical animals, the typical group inhabiting the Red Sea, Indian Ocean, Australia, Japan, etc.; one species only occurring in American waters, in the Caribbæan province. The earliest fossils are from the eocene strata of the United States and Europe; they are few in number, and the genus, never numerous in species, appears to have reached its maximum development at the present time.

Ancillaria is, through Olivancellaria, very closely connected

with the Olives, and in its frequently horned outer lip it also reminds one of Pseudoliva, and *Eburna* (*Zemira*) *australis*.

I have merged in Ancillaria several subgeneric groups of H. and A. Adams and others, which do not appear to me to possess substantial distinctive characters.

A. CINNAMOMEA, Lam. Pl. 37, figs. 2–17.

Yellowish white, with obscure revolving bands and longitudinal strigations of light reddish brown, or without markings, and ranging from flesh-color to cinnamon and dark chocolate; occasionally a revolving sulcus terminates in a slight horn on the outer lip; the folded columella is white, the interior of the aperture nearly corresponding with the outer surface in color.

Length, 1–1·25 inches.

Red Sea, Persian Gulf, Zanzibar.

I unite here several so-called species. *A. cinnamomea* is not quite adult, and more frequently exhibits the lip-tooth than the adult, heavily-callused *A. ventricosa*, Lam. (fig. 3). *A. variegata*, Sowb. (fig. 4), is the light, banded form described above, and *A. fulva*, Swn. (fig. 5) has similar painting. Other synonyms are: *A. albifasciata*, Swn. (fig. 6), *A. albisulcata*, Sowb. (fig. 7), in which the impressed groove is white, a character without constancy, *A. achatina*, Kiener (fig. 8), *A. striolata*, Sowb. (fig. 9), a juvenile, *A. castanea*, Sowb. (fig. 10), *A. ovalis*, Sowb. (fig. 11), another juvenile, *A. Deshayesii*, A. Ad. (fig. 12), *A. crassa*, Sowb. (fig. 13), *A. sarda*, Reeve (fig. 14), *A. contusa*, Reeve (fig. 15), apparently a worn specimen, *A. eburnea*, Desh. (fig. 16), *A. Tronsoni*, Sowb. (fig. 17).

A. ACUMINATA, Sowb. Pl. 37, figs. 18–20.

Yellowish brown, lighter at the sutures and on the border of the fasciole, the latter being darker brown, columella white.

Length, 1·25–1·5 inches.

Red Sea, Zanzibar.

The narrower form is the only, and perhaps not sufficient distinction between this and the preceding species. *A. lineolata*, A. Ad. (fig. 19), and probably *A. oryza*, Reeve (fig. 20), are synonyms.

A. MARMORATA, Reeve. Pl. 2, figs. 21, 22.

Whitish, faintly streaked and mottled with fulvous flesh-color,

brown-tinged at the suture and above the fasciole, columellar plaits brown. Length, ·75 inch.

Habitat unknown.

A. fasciata, Reeve (fig. 22), appears to be the same species. It may be the young of *A. marginata*, Lam., from which the brown columella appears to be the principal distinctive character.

A. AMPLA, Gmelin. Pl. 37, figs. 23, 24.

Cylindrically oblong, acuminated above, inflated below, rather thin; white, often orange-tinted on the spire.

Length, 1–1·5 inches.

Red Sea, Ceylon, Mauritius, Philippines.

A. cylindrica, Sowb. (fig. 24), is the young.

A. RUBIGINOSA, Swainson. Pl. 37, fig. 25; Pl. 38, figs. 26, 27.

Cinnamon-brown, with an enameled lighter band at the suture, and a shallow impressed one above the fasciole.

Length, 2–2·5 inches.

Japan, China, Malacca, Madagascar.

A. mamillata, Hinds (fig. 26), and *A. albo-callosa*, Lischke (fig. 27), are synonyms.

A. AUSTRALIS, Sowb. Pl. 38, figs. 28–33.

Lead-color or violet-brown, spire and upper portion of body-whorl, as well as the fasciole enveloped in a yellowish callus, marbled with chestnut. Length, ·75–1·75 inches.

Australia, New Zealand, Tasmania, Cape.

This is a shorter species than *A. rubiginosa;* yet I separate it with hesitation. *A. pyramidalis*, Reeve (fig. 29), and *A. tricolor*, Gray (fig. 30), a juvenile, *A. mucronata*, Sowb. (fig. 31), probably, and possibly *A. obtusa*, Swains. (figs. 32, 33), from the Cape of Good Hope, are synonyms.

A. MONTROUZIERI, Souverbie. Pl. 38, fig. 34.

Pinkish white, or light fawn-color, the spire and an upper band of the body-whorl invested with a thick flesh-colored or slightly brownish callus; sometimes the spire and fasciole are pure white; operculum oblong, rather large and thin.

Length, 1–1·5 inches.

New Caledonia.

A. ANGUSTATA, Sowb. Pl. 38, fig. 35.

Narrowly cylindrical, transparent fawn-color, callosity and fasciole shining orange-brown, edged with white. Length, 12 mill.

China.

Possibly the young of *A. rubiginosa*, Sw., or of a similar species.

A. BULLIOIDES, Reeve. Pl. 38, fig. 36.

Delicate fawn-color, callosity broad, opaque, white.

Length, 28 mill.

Habitat unknown.

Perhaps a young shell of *A. rubiginosa*. The type specimen only is known, and its peculiarly long spire might be an individual variation of growth.

A. CINGULATA, Sowb. Pl. 38, figs. 37, 38.

Shell thin, whitish, yellowish or pale cinnamon-color, with a white sutural band, and a revolving brown band above and on the fasciole. Length, 2–2·5 inches.

N. Australia, China?

Distinguished from *A. rubiginosa* by its thin substance and inferior dark band. *O. similis*, Sowb. (fig. 38), is probably a faded variety.

A. TANKERVILLEI, Swainson. Pl. 38, fig. 39; Pl. 39, fig. 40.

Fusiformly oblong, moderately ventricose, yellowish white to orange-yellow, darker about the sutures and on the fasciole.

Length, 2·25–3·75 inches.

West Indies.

The only species inhabiting the Western Hemisphere. I am not able to separate *O. Vernedei*, Sowb. (fig. 40), described from a single specimen, and doubtfully referred to China Seas as its habitat. Specimens of *A. Tankervillei* before me agree exactly with the figure of *Vernedei*, except that the latter is larger.

A. SINENSIS, Sowb. Pl. 39, figs. 41–43.

Transparent white, the callosity opaque white. Length, ·8 inch.

Japan, China, Australia.

A juvenile shell, and very probably equivalent to *A. rubiginosa*, Swn. *A. Nova-Zelandica*, Sowb. (fig. 42), is a synonym, and I suppose that *A. inornata*, E. A. Smith (fig. 43), may also be placed here.

A. MARGINATA, Lam. Pl. 39, figs. 44–48.

Yellowish or gray, a white band below the sutures, maculated with orange-brown, a row of maculations above, and another on the fasciole. Length, 1·5–1·75 inches.

Australia, Tasmania.

A. monilifera, Reeve (fig. 45), *A. lineata*, Kiener (fig. 46), *A. oblonga*, Sowb. (fig. 47) and *A. obesa*, Sowb. (fig. 48), are all young shells of *A. marginata*, as the specimens before me exhibit all these variations in form. The last-named is said to occur also at the Cape of Good Hope.

A. ELONGATA, Gray. Pl. 39, fig. 49.

Thin, white, sutural band ivory-white, columella not plaited. Length, 2·25 inches.

Torres Straits, N. Australia.

A. DIMIDIATA, Sowb. Pl. 39, fig. 50.

Rather thin, transparent white, sutural band, which is very broad, opaque white. Length, ·9 inch.

Red Sea.

I am not acquainted with this species; it looks as though it might be the young of *A. elongata*, Gray.

Subgenus **Anolacia**, Gray.

A. MAURITIANA, Sowb. Pl. 39, figs. 51–53.

Shell ovate, thin, spire depressed, body-whorl shouldered, aperture wide, columella scarcely plaited, outer surface closely but lightly covered with revolving striæ; yellowish white to orange-brown. Length, 1·75–2·25 inches.

Madagascar, Mauritius, Australia.

This is the *A. torosa*, Meuschen, according to Sowerby, a name under which it is quite as well known as the one I have adopted. *A. scaphella*, Sowb. (fig. 52), and *A. aperta*, Sowb. (fig. 53), are miniature shells of this species.

Subgenus **Dipsaccus**, Klein.

A. GLABRATA, Linn. Pl. 39, fig. 54.

Yellowish white to orange, white-bordered at the sutures and on the supra-fasciolar groove, columella and callus white. Length, 2–3 inches.

West Indies.

A. LIENARDI, Bernardi. Pl. 39, figs. 55, 56.

Light yellow to deep orange, basal groove white; columella, callus and interior white. Length, 1·25–2 inches.

Pernambuco, Brazil.

Proportionally much wider, with shorter spire than *A. glabrata*, yet I suspect that it is a mere variety of that species.

A. BALTEATA, Swainson. Pl. 39, fig. 57.

Yellowish white to orange-yellow, whorls angularly belted around the upper part, basal groove broad, whitish.

Length, 1·5–2 inches.

Ceylon.

The locality appears to be undoubted, and all the specimens I have seen are alike, yet it seems to be abnormal in its posterior angulation, and to resemble otherwise a stunted *A. glabrata.*

Subfamily HARPINÆ.

Genus **HARPA**, Lam.

The animals of Harpa have a very large foot, with the front crescent-shaped, and divided by deep lateral fissures from the posterior part. Unable to withdraw completely within their shell, they are said, when irritated, to have the power of spontaneously detaching a portion of this foot. They are variegated with beautiful colors, and crawl with vivacity. Tropical, inhabiting Mauritius, Philippines, Ceylon, Polynesia, West Coast of America, but unknown on the tropical Atlantic coasts of America.

There are a few fossil species. Eocene, ——.

Harpa has been monographed by Reeve, Kiener, Sowerby and recently by Dr. Aug. Sutor. The latter enumerates sixteen species, which I have reduced to nine. Like Strombus, Harpa appears to be a completed genus, no new forms rewarding the industry of modern investigators and explorers.

H. COSTATA, Linn. Pl. 40, fig. 58.

Shell with thirty or more close-set ribs, pointed at the top; white, zoned with flesh-color or light chestnut; apex rose-tinted; interior of aperture yellowish, middle and upper part of inner lip stained with brown. Length, 2·5–3·5 inches.

Mauritius.

The shell called var. *Gruneri*, Maltz., is not essentially different.

H. VENTRICOSA, Lam. Pl. 40, figs. 59, 60.

Shell with about twelve to fifteen rather broadly-flattened ribs which are crossed by a number of rather broad light-chestnut revolving bands, separated by narrow white bands; interstices of the ribs wide, marked with chestnut and white arranged in semicircles, or festooned; aperture pinkish or yellowish white within, showing the exterior painting; columella blotched with chocolate. Length, 2·5–3·5 inches.

Indian Ocean, Zanzibar, Mauritius, Philippines, Viti Islands.

H. CONOIDALIS, Lam. Pl. 40, figs. 61–64.

Spire more elevated and shoulder of body-whorl more sloping than in the preceding species; the intercostal painting is similarly festooned, but usually not so distinctly, the revolving bands on the ribs are defined either on the shoulder only, or occasionally elsewhere, or throughout by dark chocolate borders. Length, 2·5–3·5 inches.

Indian Ocean, Philippines, Mauritius.

Dr. Sutor, as well as Sowerby and Reeve have attempted to distinguish other species here, by characters that are poor enough even in their figures, but which possess no claims whatever when a large suite of specimens are examined; it is even difficult in some cases to separate this shell from *H. ventricosa*. In *H. articularis*, Lam. (fig. 62), the dark bands are well defined throughout, in *H. ligata*, Menke = *nablium*, Mart. (fig. 61), they are less frequent, and in the typical *H. conoidalis*, Lam. (fig. 63), they are usually only occasionally visible on or towards the shoulder. The latter variety approaches near to *H. ventricosa*. *H. striatula*, A. Ad. (fig. 64), is a juvenile shell.

H. CRENATA, Swains. Pl. 40, fig. 65.

Ribs distant, thin, low, not reflected, interstices festooned with light yellowish brown and white. Length, 2–3 inches.

Acapulco, Panama.

Besides the narrow ribs, the coloring is much less vivid than in the preceding oriental species.

H. ROSEA, Lam. Pl. 40, figs. 66, 67.

Ribs flat, irregular, sometimes very broad, sometimes narrow; ribs banded, interstices festooned, with three interrupted bands of rose-red blotches. Length, 1·75–2·75 inches.

Guinea, Senegal.

H. NOBILIS, Lam. Pl. 41, fig. 68.

Ovate, rather ventricose, grayish pink, painted between the ribs with chestnut and white articulations or festoons, and three interrupted bands of purple-crimson blotches; ribs rather wide, crossed by bands of black narrow lines. Length, 1·75–2·5 inches.

Indian Ocean, Philippines, Viti Islands.

Distinguished at once from *H. rosea* by the revolving black lines on the ribs.

H. MINOR, Lam. Pl. 41, figs. 69–72, 78.

Shell ovately oblong, obtusely angulated above; gray festooned with chocolate and white; ribs moderately narrow, rather distant, crossed by black lines, usually arranged in pairs.

Length, 1·5–2 inches.

Indian Ocean, So. Africa, Madagascar, Viti Isles.

H. crassa, Phil. (fig. 70), and *H. solidula*, A. Ad. (fig. 71), are synonyms; and I think that *H. virginalis*, Gray (fig. 78), will prove to be a faded or albino specimen of this species.

H. GRACILIS, Brod. and Sowb. Pl. 41, fig. 73.

Shell elongately oblong, slender, thin, translucent; whitish delicately festooned with rose-color or rosy brown; ribs rather narrow, without spines at the shoulder, crossed by thread-like rose or chestnut lines, usually in pairs. Length, 1·5 inches.

Polynesia.

Distinguished at once by its form, thinness and rosy tinge.

H. STRIATA, Lam. Pl. 41, figs. 74–77.

Shell inflated, the ribs narrow, low, not reflected, remote or crowded, the interstices lightly festooned with chestnut on a light yellowish ground; whole surface covered with revolving close striæ. Length, 1·25 inches.

Mauritius.

H. cancellata (Chemn.), Sowb. (fig. 75), and *H. Cabritii*,

Fischer (figs. 76, 77), are synonyms. Dr. Sutor attempts to distinguish these species, but his distinctive characters of coloring and sculpture are individual only, and not varietal or specific.

Family COLUMBELLIDÆ.

Shell small, usually covered by an epidermis, ovate or oblong, sometimes Strombiform, anteriorly notched or produced into a short canal, which is open; inner lip anteriorly tubercled, outer lip incurved in the middle, and usually thickened and crenulated on its inner margin. Animal: head elongated; eyes near the outer bases of the tentacles; foot anteriorly produced. Operculum corneous; lamellar, with the nucleus basal or near the centre of the outer margin. The lingual dentition of the group is peculiar and readily distinguishable from that of all other Gastropods; its features persist with but little variation of detail through all the subdivisions of the family of which examples have been examined, except Engina. In the section Amycla, Messrs. H. and A. Adams have included species such as *A. corniculum*, Olivi, which are true Nassæ, and the dentition of this species has been hastily assumed to be that of the whole group of Amycla. Other species, placed by H. and A. Adams in the group Engina, undoubtedly belong to the group Sistrum in Ricinula (see Manual, ii). The lingual of a single but typical species of Engina has been figured by Mörch (Manual, vol. iii, t. 27, f. 36); it differs greatly from the Columbelliform type of dentition, and the genus has accordingly been classified by Troschel in Photinæ. The shell of Engina is distinctly Columbelloid, however, and the difference of dentition need not deter us from placing it in Columbellidæ since in *Marginella glabella* (this vol., p. 6), distinct types of dentition occur in the same species.

A number of classifications of the species of Columbellidæ have been proposed. H. and A. Adams have adopted several groups first characterized by Swainson, and have instituted some others; they are mostly of little systematic value, being founded on slight differences in the form, etc., of the shell—differences which do not persist throughout all the species assigned to them

respectively. On the contrary, it is only necessary to examine a large series of these species to become convinced that in most cases these groups are connected by intermediate forms. Whilst I cannot adopt them as subgenera on account of this want of persistence of distinctive characters, yet such is the multiplicity of species that retained as names of groups they may still serve a useful purpose. Bellardi* has divided the fossil Columbellas of Piedmont into groups designated as Nassiform, Mitriform, Fusiform, etc., but I think the named groups of Messrs. Adams preferable. Mörch† proposes the following classification :—

1. PYGMÆA, Humphrey.
   Subgenera, 1. NITIDELLA, Swn. 2. ALIA, Ad.
2. PYRENE, Bolten.
   Subgenera, 1. ATILIA, Ad. 2. PYRENE, Bolt. 3. CONELLA, Swn. 4. DIBAPHUS, Phil. (= Mitridæ).
3. MITRELLA, Risso.
   Subgenera, 1. ASTYRIS, Ad. 2. ANACHIS, Ad. 3. STROMBINA, Mörch.

He excludes Engina, on account of the dentition. The types of Pygmæa, cited by him are typical species of Columbella, and therefore Pygmæa may be considered a synonym

I am only able to recognize a few genera, of which the principal are Columbella, Engina and Columbellina—the latter with some doubt as to its characters being of generic value; all the other groups that have been proposed I place as Sections.

The family has been monographed by Duclos, in Chenu's Illustrations Conchyliologiques; by Kiener, Coquilles Vivantes; by Sowerby, Thesaurus Conchyliorum, vol. 1, 1847; and by Reeve, Conchologia Iconica, 1859. Since the latter date no revision or catalogue of the species has appeared, whilst the number of specific names has increased three times, or from 250 to about 750 nominal species. A large proportion of these five hundred additional descriptions are unaccompanied by figures, so that the labor of arranging the mass of material has been immense. I cannot hope to have determined the synonymy correctly in all cases: I have done the best I could with the material at hand.

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* Mem. Acad. Turin., x, 225, 1849.

† Jour. de Conchyl., 2d ser., iii, 260, 1858.

Synopsis of Genera.

COLUMBELLA, Lam. Shell Strombiform, fusiform or obovate; smooth or longitudinally or transversely ribbed or striate; inner lip excavated in the middle, crenulated or denticulated in front; outer lip usually inflected, thickened within and crenulated in the middle.

COLUMBELLA (restricted). Shell Strombiform, with short spire. Dentition, Pl. 2, fig. 18.

NITIDELLA, Swainson. Shell oval, smooth, with elevated spire; aperture somewhat effuse below; columella with two small anterior plications; outer lip somewhat thickened.

ALIA, H. and A. Adams. Shell thin, smooth, with moderate spire; aperture oval; inner lip finely crenulated, outer lip thick, not callous in the middle, striate within.

MITRELLA, Risso. Shell Mitriform, smooth, with moderate spire; columella smooth or with a few anterior rugosities; outer lip smooth or crenulated within.

ATILIA, H. and A. Adams. Shell fusiform, smooth or longitudinally plicate; spire elevated, sharp; last whorl suddenly narrowed into a beak or short canal in front.

ANACHIS, H. and A. Adams. Shell oval-fusiform, longitudinally ribbed, spire elevated; last whorl not narrowed in front; aperture narrow; collumella straight; outer lip nearly straight, crenulated within. Dentition, Pl. 2, fig. 20.

SEMINELLA, Pease. Shell very small, fusiform, longitudinally costate, usually decussated; lip slightly emarginate above, lirate or denticulate within.

MITROPSIS, Pease. Shell fusiform, more or less costate or plicate longitudinally; aperture narrow; lip dentate within, sinuated above; columella callous, plicate.

Perhaps not distinct from Seminella.

CONIDEA, Swainson. Shell oval, Mitriform, smooth, with moderately elevated, convex spire; inner lip reflected in front; outer lip incurved and thickened in the middle, and crenulated within.

META, Reeve. Shell coniform, with short, conic spire; aperture narrow; outer lip nearly straight, crenulated within.

STROMBINA, Mörch. Shell fusiform, turriculated; spire elevated, sharp; whorls gibbous, nodulous; inner lip with a rather thick callus; outer lip thick, sinuous behind; anterior canal well formed. Dentition, Pl. 2, fig. 19.

ÆSOPUS, Gould. Shell fusiform, gibbous, broadly truncate in front; aperture lunate, with a posterior callus on the body; columella smooth, vitreous; suture abnormally arcuate near the aperture.

ALCIRA, H. Adams. Shell fusiform, thin, spire produced; whorls transversely striated; aperture ovate; columella truncate, with a single oblique fold anteriorly; outer lip thin, smooth internally, posteriorly expanded, and with the anterior margin crenulated. Differs from the other groups in its expanded lip, which is not thickened, and from most others in the columellar fold.

ENGINA, Gray. Shell ovate-conic; spire sharp; with longitudinal nodulous ribs, decussated by revolving lines or riblets; aperture narrow, with several oblique plications in front; outer lip thickened, internally toothed, gibbous and grooved posteriorly. Dentition, Manual, iii, t. 27, f 36.

PUSIOSTOMA, Swainson. Shell ovate; inner lip convex between the granular teeth; outer lip internally greatly thickened and toothed in the middle..

COLUMBELLINA, d'Orb. Shell Strombiform, oval, thick, ventricose, ribbed; aperture narrow, flexuous, narrowed in the middle, ending posteriorly in a prolonged lateral canal; outer lip much thickened and smooth within. (Mostly fossil.) *C. ornata*, d'Orb. (Pl. 42, f. 3). Cretaceous, France.

COLUMBELLARIA, Rolle. Shell long-oval, Buccinoiform, body-whorl rather inflated, spire moderate; surface nodulous, caused by decussating sculpture; aperture wide below; outer lip rounded, not inflected in the middle, with strong revolving ribs within; columellar callus thin, showing the sculpture of the body-whorl. *C. corallina*, Quenst. (Pl. 42, fig. 4). U. Jura, Europe.

AMPHISSA, H. and A. Adams. Shell Buccinoiform, longitudinally ribbed; spire elevated; aperture rather wide, enlarging below, and terminating in a wide anterior sinus; inner lip callous, plicate below; outer lip not thickened on the margin, plicate within. Dentition, Pl. 42, fig. 2.

Genus COLUMBELLA, Lamarck.

These beautiful little mollusks, very numerous in species and in individuals, are widely distributed, occurring in all parts of the world, both in cold and torrid climates; although most numerous in tropical waters. They are found crawling on the surface of sand-flats in shallow water, or living on stony beaches, where they sometimes congregate about and under stones in considerable numbers.

Very few descriptions of the living animal have been made, and even figures of it are not numerous.

The few fossil forms of Columbella are comparatively recent,

the Cretaceous and Jurassic columbelloid shells belonging to distinct genera.

Section 1. **Columbella** (*typical*).

Shell strombiform, smooth, with short spire.

C. Strombiformis, Lam. Pl. 42, figs. 5–10.

Shell strombiform, the body-whorl much swollen around the upper part and somewhat produced at the posterior end of the aperture; chestnut-color, with the spire and middle and lower portion of the body-whorl minutely white-spotted; sometimes the spots coalesce into zigzag white markings; there are also usually a few irregular large white spots on the shoulder or middle of the body-whorl; interior usually white, sometimes orange-tinted; epidermis thick, shaggy, longitudinally striated, frequently decussated posteriorly or throughout by revolving striæ; operculum very variable in form, the initial point usually terminal and basal but occasionally even subcentral, or marginal at the centre of its length. Length, ·83–1·4 inches.

West Coast of Central America to *Mazatlan; Gulf of California.*

With this species is to be united *C. major*, Sowerby (figs. 6–8), which Carpenter and others have suspected to be a variety, having dots instead of the zigzag white markings and the spiral sculpture of the epidermis on the shoulder only, instead of all over; neither these, nor the other inferior distinctive characters given, hold good when a large series of specimens is examined. Fig. 8 represents a smaller, but adult shell; it is a minor race, which, as in so many of the species of mollusks usually accompanies the normal-sized individuals. Other synonyms are *C. gibbosa*, Duclos (fig. 9), *C. Bridgesi*, Reeve (fig. 10), not full grown.

C. Paytensis, Lesson. Pl. 42, figs. 11–14.

Whorls broadly channeled below the sutures: chestnut-brown, minutely dotted with white throughout. Length, 1–1·15 inches.

Payta, Peru; Chili.

This may possibly be a variety only, of the preceding species; the sutural channel is strongly marked, however, in the numerous specimens before me. *C. spurca*, Sowb., *C. rustica*, Sowb. Genera of Shells (fig. 14), and *C. Paytalida*, Duclos (fig. 13), are synonyms.

C. CASTANEA, Sowb. Pl. 42, fig. 15.

Shell with a shallow channel around the suture, defined by an angled or almost ribbed shoulder; lower half of body-whorl contracted; chestnut-brown, spotted with white, aperture tinged with orange within. Length, ·85 inch.

Galapagos Is.; W. Coast of Central America.

I have considerable doubt whether this is not a variety only of the preceding species; it is considerably smaller, more contracted, with more defined shoulder, and colored interior.

C. FASCIATA, Sowb. Pl. 42, figs. 16–18.

Shell large and thick, oval, slightly shouldered; brown, spotted with white, the spots sometimes merging into irregular zigzag longitudinal markings, occasionally obscurely white-banded at the suture and periphery; teeth of columella and outer lip sometimes tinted with red. Length, 1·25 inches.

Java.

This species is not so gibbous as those which precede it, and has heavier teeth; the spire is also more convexly elevated. *C. Javacensis*, Gaskoin (fig. 18), is probably a faded specimen of *fasciata*.

C. FUSCATA, Sowb. Pl. 42, figs. 19–21.

Shell smooth, oval; chestnut-dotted and spotted irregularly with white, and with white, triangular sutural markings, continued on the spire; epidermis light olive, very thin, smooth, translucent; aperture light purple. Length, ·75–·9 inch.

Galapagos Is.; West Coast of Central America to *Cape St. Lucas, L. California; Mazatlan.*

The synonyms are *C. meleagris*, Duclos (fig. 20), *C. nodalina*, Duclos (fig. 21), a specimen with epidermis, and *C. pallescens*, Wimmer.

C. SONSONATENSIS, Mörch.

Like *C. fuscata*, Sowb., but narrower, with shorter spire, suture obsoletely margined, earlier whorls costellate, lip thickened and flattened, with seven teeth, columella five-sulcate.

Length, 8·25 mill.

W. Coast of Central America.

A doubtful species, described from a single specimen, and not figured.

C. LABIOSA, Sowb. Pl. 43, figs. 22, 23.

Epidermis very thin, smooth, translucent, olivaceous; under which the shell is ash-color, with numerous narrow chestnut revolving lines; lip and columella white, the lip with plate-like expansion internally. Length, ·8–1 inch.

St. Elena, W. Columbia (Cuming).

C. venilia, Duclos (fig. 23), is a synonym.

C. HÆMASTOMA, Sowb. Pl. 43, fig. 24.

Shaded chestnut and chocolate-color, with white blotches which are usually arranged as broad zigzag markings on the shoulder, and similar ones at the base of the body-whorl, the latter often coalescing to cover the entire basal portion of the shell; aperture orange-color. Length, 1 inch.

Galapagos Is.; Panama to *Gulf of California*.

C. FESTIVA, Kiener. Pl. 43, fig. 25.

Shell smooth; white around the sutures, then spotted and streaked longitudinally with white and chocolate; aperture white. Length, 9 mill.

Acapulco to *Cape St. Lucas, L. California*.

C. PHASINOLA, Duclos. Pl. 43, fig. 26.

Shell with revolving rounded ribs, often decussated by longitudinal sculpture, so as to become tuberculated; chestnut-brown, the tubercles whitish; lips orange. Length, 10 mill.

Habitat unknown.

C. MERCATORIA, Linn. Pl. 43, figs. 28–33.

Shell with small rounded revolving ribs, separated by narrow grooves; sometimes unicolored, pink or yellowish, usually longitudinally maculated with orange or chocolate and white, and with or without chocolate articulations forming one or two bands; aperture white or slightly yellowish. Length, ·6–·8 inch.

West Indies, Florida.

A common species, very variable in painting, but pretty constant in form and sculpture; it occurs on sandy bottoms in from two to four feet water. The synonyms are numerous, including a large, coarsely ribbed form, called by Sowerby *C. rudis* (fig. 31). Reeve has figured this form under the name of *C. Peleei*, Kiener, and has given for locality the Philippine Islands—undoubtedly an error. The true *C. Peleei*, Kiener (fig. 32), is, on

the contrary, a rather small form, thin, but with rugose growth-lines decussating the surface—a not unusual variety. Other synonyms are *C. zulmis*, Duclos (fig. 33), *C. affinis*, Risso, *C. incubitantes*, Martini, *C. Gualteriana*, Risso?

C. Dysoni, Reeve. Pl. 44, fig. 57.

Shell fusiformly conical, yellowish white, painted with waved stripes of red-brown spots, spire short, sharp, whorls strongly spirally grooved throughout; aperture elongated, lip flatly thickened, denticulated within. Length, 16 mill.

Honduras (Dyson).

I think this will prove to be a *C. mercatoria*, of somewhat unusual form and not adult.

C. rustica, Linn. Pl. 43, figs. 34–49; Pl. 44, figs. 50–56.

Shell variable in shape, sometimes short, with broad body-whorl, sometimes narrower, with spire and lower part of body-whorl produced; smooth, or slightly spirally striated; white to orange-color, stained with chestnut or chocolate, forming spots, longitudinal zigzags and blotches, frequently light banded and fasciculated with chestnut next below the suture; lip white, yellowish or flesh-color, the interstices of the denticulations chocolate-color. Length, ·5–1·1 inches.

West Indies, West Africa, Cape Verd Is., Southern Europe, Mediterranean Sea.

One of the most variable of shells. The shorter, broad forms are often very close in shape and coloring to *C. mercatoria*, but are always distinguishable by the smooth surface and the dark interstices of the lip-teeth.

The synonymy is enormous, including: *C. spongiarum*, Duclos (fig. 39); *C. Azorica*, Drouet (fig. 40); *C. aureola*, Duclos (fig. 41) and *C. tumida*, Reeve, not Duclos (fig. 42); *C. striata*, Duclos (figs. 43, 44); *C. cornea*, Kiener (fig. 45); *C. luteola*, Kiener (fig. 46); *C. fustigata*, Kiener (fig. 47); *C. modesta*, Kiener (fig. 48); *C. ambigua*, Kiener (fig. 49); *C. vestalia*, Duclos (fig. 50); *C. simpronia*, Duclos (fig. 51); *C. nucleus*, Kiener (fig. 52); *C. rasolia*, Duclos? (fig. 53); besides a number of unfigured species, including probably *C. Adansoni* and *C. rufa*, Menke, from the Cape Verd Islands. *C. reticulata*, Lam. (fig. 54), said to come from Brazil, has some characters in common with *C.*

mercatoria, but is probably a synonym of *rustica*. I suppose that *C. xiphitella*, Duclos (fig. 55), and *C. xiphitella*, Reeve (fig. 56), may both be placed here, although they are very different shells in form.

C. ANACTEOLA, Duclos. Pl. 44, fig. 58.

Shell smooth, the lower part with revolving striæ; color chocolate-brown varied with white, somewhat longitudinally disposed. Length, 1·1 inches.

Habitat unknown.

This species has not been described; there are only the figures and name in Duclos' monograph. It resembles the stouter, short forms of *C. rustica*, somewhat, but is a larger shell.

C. MARMOREA, Brusina.

Shell small, ovately subturbinate, smooth, shining, with flattened whorls; aperture dilated at the base, sublinear, longer than the spire; lip but little thickened within, nodulose; columella with two tubercles; color marbled with fulvous and white, with a white, maculated band at the suture.

L. 10, diam. 5 mill.

Dalmatia.

An unfigured species, related to *C. rustica*, and possibly a young individual of that protean species.

C. PARDALINA, Lam. Pl. 44, figs. 59–74; Pl. 45, fig. 75.

Shell oval, smooth, with moderate, somewhat convex spire; white, tessellated or longitudinally flexuosely striped with chestnut or chocolate, with frequently a white band, similarly tessellated at the suture. Length, ·75–1 inch.

New South Wales; N. W. Australia; New Caledonia; Philippines; Japan; Ceylon.

The synonyms are: *C. vulpecula*, Sowb. (fig. 61); *C. quintilia*, Duclos (figs. 62, 63); *C. fabula*, Sowb. (fig. 64); *C. Japonica*, Reeve (fig. 65); *C. zopilla*, Duclos (fig. 66).

Var. TYLERI, Gray. Pl. 44, figs. 67–74; Pl. 45, fig. 75.

Only differs by having a more produced spire, and is readily united with the typical form by such synonyms as *C. sagena*, Reeve (fig. 69), Japan. Other longer forms are *C. obscura*, Sowb. (fig. 70); *C. palmerina*, Duclos (fig. 71); *C. lactescens*, Souv. (fig.

72), New Caledonia; *C. fabula*, var., Reeve (fig. 73); *C. padonosta*, Duclos (fig. 74); *C. anitis*, Duclos (fig. 75).

C. FULGURANS, Lam. Pl. 45, figs. 76, 77.

Shell thick, short ovate, with indistinct revolving striæ, and a very thin, transparent yellowish epidermis; usually very dark chocolate, nearly black, sometimes chestnut, and marked by a few longitudinal zigzag white streaks; aperture tinged with purple. Length, ·75–·9 inch.

Philippines, Solomon's Is., N. E. Australia, New Guinea, etc.

Var. PUNCTATA, Lam. (Fig. 77.)

The white streaks are more or less completely broken up into spots.

C. PELOTINA, Duclos. Pl. 45, figs. 78, 79.

Shell short ovate, thick, smooth, with faint spiral striæ on the lower portion of the body-whorl; irregularly clouded with orange and yellowish white. Length, ·65 inch.

Habitat unknown.

Figured and named but not described by Duclos. It appears to be a faded and discolored shell; not unlikely a *C. pardalina*. *C. virginea*, Duclos (fig. 79), is very probably a still more faded individual of the same species.

C. TURTURINA, Lam. Pl. 45, figs. 80–82.

Shell short and thick, subglobose, the shoulder of the body-whorl swollen, with revolving striæ inferiorly; white, variegated with clouds or zigzags of yellowish brown; columella and teeth of outer lip often stained with violet. Length, ·5–·65 inch.

Philippines, Viti Islands, Sandwich Islands, etc.

The yellowish markings are often absent. *C. Sandwichensis*, Pease, and *C. palumbina*, Gould, are synonyms. I think that *C. Deshayesii*, Crosse (fig. 82), may also be referred here.

C. SULCATA, Duclos. Pl. 45, fig. 83.

This is evidently an abnormal growth, and its character, a sulcation on the shoulder, will be sought in vain among shells in normal condition. It is impossible to identify it with certainty. The color is a shading of flesh-color and light yellow.

Length, ·7 inch.

Habitat unknown.

C. VERSICOLOR, Sowerby. Pl. 45, figs. 84–96.

Shell ovate, with moderate spire, the whorls swollen at the shoulder, beneath which the body-whorl is more or less constricted, shoulder sometimes sparsely, obsoletely tuberculated; yellowish white, with zigzag chestnut or chocolate close longitudinal markings, often shaded with white; on the middle of the body-whorl these markings are often broken up into numerous small punctations; aperture white within; columella tuberculate, with two prominent teeth in the middle. Length, ·5–·75 inch.

Indian Ocean; Japan; Philippines; Australia; Polynesia.

The oldest name for this species is *C. scripta*, Lam., but Linnæus had previously used this name for a well-recognized Mediterranean species. *C. bidentata*, Menke (fig. 87), is also a synonym, and very probably *C. variegata*, Menke. The latter name would have priority if it could be satisfactorily identified. The synonymy will include *C. araneosa*, Kiener (fig. 88), *C. coronata*, Duclos (fig. 89), *C. athadona*, Duclos (figs. 90, 91), *C. tigrina*, Duclos (figs. 92, 93), *C. aspersa*, Sowb. (fig. 94), *C. nivosa* (fig. 95) and *C. pertusa* (fig. 96), Reeve, the two last erroneously ascribed to Guatemala in the original descriptions.

C. VARIANS, Sowb. Pl. 45, figs. 97–2; Pl. 46, figs. 3–6.

Shell ovate, with short spire; smooth, or with fine revolving striæ; shoulder tuberculated; with longitudinal ribs more or less prominent, sometimes extending the entire length of the shell, usually becoming obsolete towards the middle, and occasionally not developed at all. Color, white and chestnut or chocolate in alternate revolving bands, the latter usually broken up into short irregular longitudinal markings; sometimes the bands are not present, and the entire shell is covered with alternate chestnut and white zigzag longitudinal stripes; base of the columella stained dark chocolate; aperture white within.

Length, ·35–·4 inch.

Viti, Galapagos and *Sandwich Islands. Acapulco? Philippines, New Guinea.*

This species is smaller, more tuberculate, and in the banded specimens differently colored from the preceding one; the colored base of the columella is also a good distinguishing character The figure from Reeve's Iconica (fig. 99), shows a ribbed state

of the species, a form which Sowerby has described as *C. pœcila* (figs. 100, 1), from the Philippines. *C. spectrum*, Reeve (fig. 2), *C. nana*, Mich. (fig. 3), *C. pallida*, Desh., *C. pallidula*, Duclos (fig. 5), and *C. lysiska*, Duclos (fig. 6), are synonyms.

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C. SOUVERBIEI, Crosse. Pl. 46, fig. 8.

Shell ovate, with short spire; slightly nodulous on the shoulder, and covered by revolving striæ; white, maculated with large irregular chocolate spots, forming two broad bands on the body-whorl, and chestnut punctations at the suture; violaceous within the aperture. Length, 8·5 mill.

New Caledonia.

Closely allied to *C. varians*, but differing in being less tuberculated, in coloring, in the absence of the dark basal spot, etc.

C. IDULIA, Duclos. Pl. 46, fig. 7.

Shell thick, ovate, round-shouldered, with obsolete revolving ribs; white, with zigzag chestnut markings. Length, ·7 inch.

Habitat unknown.

Figured and named, but not described; I am unable to identify it.

C. PALLIDA, Philippi.

Shell oblong-fusiform, with revolving striæ; white, with a single chestnut band, composed of maculations; aperture violaceous within. Length, ·5 inch.

Mazatlan.

This species, described twenty-five years ago, but never figured, remains unrecognized. Carpenter, who so thoroughly studied the mollusca of Mazatlan, and of the West Coast of North America, could make nothing of it. Philippi compares it with *C. azora*, Duclos, which, he says, it resembles in form but differs in being one- instead of three-banded.

C. SCALPTA, Reeve. Pl. 46, fig. 9.

Shell ovate, transparent golden yellow, marked transversely with sharply angular pale lines; spire short; whorls longitudinally plicately ribbed; aperture small, oblong, sinuous; lip thickened, notched at the upper part, denticulated within.

Length, ·25 inch.

Habitat unknown.

C. HUMEROSA, Carpenter.

Shell small, turreted, with elevated spire, distant rounded longitudinal ribs and sharp revolving striæ; white with fuscous lines or maculations. Length, ·26 inch.

Acapulco.

Said to possess the sculpture of *Rhizocheilus* and the tall spire of *Anachis*, yet to belong, apparently, to the restricted typical genus. Unfigured, and unknown to me.

C. BOIVINI, Kiener. Pl. 46, figs. 10, 11.

Shoulder of whorls nodulous, with sometimes a second row of smaller nodules on the body-whorl, lower part with revolving striæ; dark chocolate, nearly black, covered by minute white spots; aperture white, the lips stained with chocolate.

Length, ·75–1 inch.

West Coast of Central America.

C. Sowerbyi, Duclos (fig. 11), appears to be a not fully grown specimen of this species.

C. DECUSSATA, Sowb. Pl. 46, fig. 12.

Shell oblong, thick, white, marbled with brown; spire turreted; whorls five, rather swollen, decussately sculptured into numerous tubercles; aperture whitish. Length, 17 mill.

Australia.

C. CHLOROSTOMA, Sowb. Pl. 46, fig. 13.

Shell yellowish white, with chestnut bands spotted with black on the ribs; interior orange-brown. Length, 16 mill.

Habitat unknown.

Published by Sowerby many years ago, and not since identified.

C. MITRATA, Menke. Pl. 46, fig. 14.

Longitudinally ribbed, interstices towards the base latticed; yellowish, with two broad chocolate bands. Length, 10–15 mill.?

Australia.

I am not acquainted with this species.

C. DUCLOSIANA, Sowb. Pl. 46, fig. 15.

Shell longitudinally ribbed, obsoletely striate; dark brown, with obsolete bands under a dusky epidermis; aperture violaceous or brown. Length, 15–18 mill.

Malacca, Java, Philippines.

Section II. **Nitidella**, Swains.

Shell oval, smooth, with elevated spire; aperture somewhat effuse below; columella with two small anterior plications; outer lip somewhat thickened.

C. LÆVIGATA, Linn. Pl. 46, figs. 16–21.

Shell thin, ovate, somewhat ventricose, smooth, shining, under a thin epidermis; white, with coarse or fine longitudinal, brown zigzag lines, often broken up into spots and maculations; the suture is often maculated with white, and there is frequently a band of chocolate spots on the periphery, and visible on the spire-whorls. Length, ·7–·8 inch.

West Indies.

There are two well-marked types of coloration in this common species, with intermediate stages: in one, the shell is covered by alternate irregular longitudinal markings of white and chestnut, the suture is not maculated, there is no band on the periphery; in the other, the longitudinal lines are so close and fine as to nearly cover the shell with a chestnut-color, and are often broken up into spots and maculations; upon this background are white maculations at the suture, and a row of chocolate spots on the periphery. The synonyms are *C. alaperdicis*, Reeve (fig. 18), *C. concinna*, Sowb. (fig. 19), and possibly *C. faleonta* (fig. 20), and *C. helvia* (fig. 21), Duclos—the two last being undescribed but figured and named.

C. LIVESCENS, Reeve. Pl. 46, fig. 22.

Shell ovately turbinated, rather solid; spire sharp, finely ribbed towards the apex; whorls rather stout, convex, smooth; orange-brown, shining, bluish, marbled with white dots; columella lipped, aperture rather small, purplish, lip thickened, slightly contracted in the middle, denticulated within. Length, ·5 inch.

Philippines (Cuming); *Sandwich Is.* (von Martens).

I have not seen this species, but Reeve's figure is very suggestive of *C. lævigata*.

C. NITIDA, Lam. Pl. 46, fig. 23.

Shell narrowly oblong, compressed, smooth, shining; irregu-

larly marbled and spotted with white and yellow, chestnut or chocolate-color; apex of spire often violet. Length, ·6–·8 inch.

West Indies, on coral in 2–3 feet water.

It is the *C. nitidula* of Sowerby, but scarcely of Linnæus.

C. Broderipii, Sowerby. Pl. 46, figs. 24–26.

Shell narrowly oblong, with rather elevated spire, smooth, shining; yellowish white, with longitudinal chestnut reticulations; aperture white; outer lip broadly notched above.

Length, ·4 inch.

Philippines.

C. strigata, Reeve (fig. 26), appears to = this species.

C. floccata, Reeve. Pl. 46, fig. 27.

Shell cylindrically ovate, inflated, subtransparent, reticulated with orange, promiscuously flaked with opaque white; spire rather obtuse, whorls convex, smooth; aperture rather small, columella excavated, lip simple. Length, 13 mill.

Cape Colony.

I do not know this species.

C. Kraussi, Sowb. Pl. 46, figs. 28, 29.

Shell obsoletely longitudinally plicate, the plicæ distant; aperture broad, lip simple; white with longitudinal waved chestnut lines. Length, 7 mill.

Natal, So. Africa.

In shape and painting resembles *C. Broderipii*, Sowb., but differs in sculpture. In *C. cerealis*, Menke (fig. 29), the ribs are better developed, but I do not believe that it is a distinct species.

C. leucostoma, Gaskoin. Pl. 46, fig. 30.

Shell smooth, acuminately ovate; upper half of body-whorl and spire reticulated with orange-brown, lower half of body, aperture and a sutural band, white. Length, 9 mill.

Habitat unknown.

C. baccata, Gaskoin. Pl. 46, fig. 31.

Shell ovate, smooth, shining, with elevated spire; white, tessellated with chestnut, the tessellations usually forming one to three bands on the body-whorl. Length, 6 mill.

Central America, Gulf of California, Cape St. Lucas.

C. dichroa, Sowb. Pl. 46, figs. 32, 33.

Shell smooth, narrow, with elongated spire; color alternate

irregular broad longitudinal stripes of white and chestnut or chocolate, sometimes nearly covered by the darker colors, which also stain the interior. Length, 6–7 mill.

West Indies.

C. Schrammi, Petit (fig. 33), is a synonym.

C. PUSILLA, Sowb. Pl. 46, fig 34.

Shell smooth, with elongated spire; yellowish white, with longitudinal flexuose stripes of chestnut, and sometimes bands of spots of the same color. Length, 4 mill.

West Indies.

C. ELEGANS, Dall.

Shell subulate, acutely pointed, smooth, polished, solid; yellowish, with white dots on the spire and upper portion of body-whorl, and longitudinal fluctuating chestnut stripes.

Length, ·28 inch.

Panama.

Described from a single specimen and unfigured. The name is preoccupied by Sowerby for a species of the section Strombina.

C. MILLEPUNCTATA, Carpenter.

Shell small, livid, shining, with elevated spire, somewhat flattened whorls and distinct suture; nuclear whorls smooth, subsequent ones obsoletely radiately lirulate, the last smooth; maculate and minutely punctate with orange-color arranged in quincunx; a white band at the suture; aperture subquadrate; outer lip thickened, six-dentate within; inner lip lirulate at the base. Length, ·3 inch.

Cape St. Lucas.

Unfigured, and unknown to me.

C. DENSILINEATA, Carpenter.

Form of the last species, but with flattened whorls and indistinct suture; livid, with close orange-brown longitudinal divaricating lines. Length, ·25 inch.

Cape St. Lucas.

Unfigured. Probably a mere variation of the preceding species.

C. VITIENSIS, Dunker. *Viti Islands.*

C. PLICATULA, Dunker. *Viti Islands.*

The above species are referred to Nitidella; they are unfigured. and I have not seen them.

Section III. **Alia**, H. and A. Adams.

Shell thin, smooth, with moderate spire; aperture oval; inner lip finely crenulated, outer lip thick, not callous in the middle, striate within.

C. CARINATA, Hinds. Pl. 47, figs. 35–39.

Shell smooth; fulvous, encircled by two or three bands of chestnut and white flocked spots; base of shell and apex of spire stained with chocolate; inner margin of the outer lip frequently similarly colored. Length, 7·5–10 mill.

Cape St Lucas, L. Cal. to *Sitka.*

The above is the description of the larger, smooth, northern variety, called by Gould *C. gausapata* (fig. 37): these are not carinate, but pass by imperceptible stages into the smaller *C. Californiana*, Gaskoin, the subcarinate *C. Hindsii*, Reeve (fig. 38), the stumpy, strongly carinate *C. carinata* (figs. 35, 36) and the equally small, but more graceful, and scarcely carinate *C. Gouldi*, Carpenter. I have selected from these names that of the earliest published, but with some misgiving because it describes a state of the species which must be regarded as abnormal; I have been partly influenced to do this because Mr. W. H. Dall similarly arranged the synonymy of the species ten years since. *C. Gouldi* is said to differ in its operculum, but the operculum is known to vary in other species of Columbella from fusoid to purpuroid. *C. collaris*, Reeve (fig. 39), is probably a large example of the carinate form.

C. UNIFASCIATA, Sowerby. Pl. 47, figs. 40–44.

Shell ovate, smooth, with revolving striæ at the base of the body-whorl; chocolate, with or without a lighter band on the periphery; chocolate or chestnut-color within the aperture.

Length, 12 mill.

Galapagos Islands; Coast of Peru and Chili; Magellan's Straits.

C. unicolor, Sowb. (fig. 41), the unfigured *C. unizonalis*, Gray, and *C. sordida*, d'Orb. (fig. 42), are synonyms. *C. castanea*, Gould (fig. 43), is also evidently the same species; it is said to have been obtained by the Wilkes Exploring Expedition at Rio Janeiro, but as the expedition visited the West Coast of South America also, it is probable that the locality given may be incor-

rect. I have specimens of the original lot before me; they do not differ from *unifasciata*. The very short description given by Lamarck of his *C. unifascialis* leaves little doubt that it was intended for this species: it is said to have come from the Isle of France, and has never been identified positively. I include also *C. ebenum*, Phil., an unfigured species from Magellan's Straits.

C. ELECTROIDES, Reeve. Pl. 47, fig. 44.

Shell ovate, smooth, rather thin; reddish fulvous, articulated with white next the sutures. Length, 13 mill.

Bay of Guayaquil.

C. INFUMATA, Crosse. Pl. 47, fig. 45.

Shell ovate-elongate, rather thick, smooth, not shining; chestnut-brown, with scarcely visible white maculations next the suture. Length, 12 mill.

So. Australia.

Section IV. **Mitrella**, Risso

Shell mitriform, smooth, with moderate spire; columella smooth or with a few anterior rugosities; outer lip smooth or crenulated within. I unite with this group *Astyris* and *Amycla* (in part) of H. and A. Adams. The principal species of the latter are true *Nassæ*, and are described in vol. iv, 36, 37.

C. IDALINA, Duclos. Pl. 47, figs. 46, 47.

Shell smooth, polished, yellowish or rosy white, apex pink, with a row of opaque white spots on the periphery, sometimes shaded, and occasionally reappearing at the sutures of the upper whorls. Length, 8 mill.

St. Thomas, W. I. (Swift).

Under a glass, the shell is sometimes covered with smooth, rounded longitudinal ribs; the outer lip appears to be smooth within. *C. gulturosa*, Duclos (fig. 47), is a larger shell according to the figure given, but does not otherwise differ from a faded state of *C. idalina*.

C. MOLECULINA, Duclos. Pl. 47, figs. 48, 49.

Shell white, with an open network of chestnut, and darker chestnut curved markings near the suture, defining a sutural band; sometimes the surface is covered with chocolate, except the sutural space and the defining markings.

Habitat unknown.

The dark-surfaced species included in the above description is *C. denticulata*, Duclos (fig. 49); the form of the shell and pattern of coloration leave not a doubt of its identity with *C. moleculina*. I feel almost assured of the identity of these shells with *C. idalina*, although I find none among the numerous specimens of that shell before me, showing their coloration.

C. Reevei, Carpenter. Pl. 47, fig. 50.

Shell with fine revolving linear grooves; white more or less clouded or spotted with chestnut-brown, often forming a revolving row of spots below the suture, or brown with white spots below the suture; interior of outer lip very faintly plicate.

Length, 8 mill.

Guacomayo to *Cape St. Lucas, Cal.*

First described by Carpenter as *C. Santa-Barbarensis*, and subsequently changed as above, because the species is of more tropical distribution, and is believed not to approach Santa-Barbara, Cal.

C. ionida, Duclos. Pl. 47, fig. 51.

Shell uniform pale rose or orange, the spire and upper portion of the body with rounded longitudinal ribs, the lower portion of the body-whorl with revolving lines; outer lip dentate within.

Length, 13 mill.

Habitat unknown.

Although comparatively large the original figures of this species appear to indicate juvenility. The form of the shell scarcely permits its arrangement in this group, recalling that of the typical *Columbellas*, but the dentition of the outer lip is different, and in the sculpture there is some analogy with *C. idalina*.

C. irrorata, Reeve. Pl. 47, fig. 52.

Shell acuminately oblong, smooth, spire acicular, whorls convex, the last groove-striated at the base; yellowish, finely dotted with orange throughout, and encircled beneath the sutures with orange-shaded, snow-white spots; aperture ovate, lip denticulated within. Length, 15 mill.

Australia (Mus. Cuming), *Tasmania* (Woods).

C. acicula, Reeve. Pl. 47, figs. 53, 54.

Shell subulate, slender, solid, variegated throughout with minute

brown flames and opaque white; spire sharp; whorls seven, flatly convex; aperture small, lip thickened, denticulated within.

Length, 19 mill.

California (Mus. Cuming).

This locality has not been verified by Californian collectors, and I do not know that the species has been recognized by conchologists generally: I am unacquainted with it. *C. vexillum*, Reeve (fig. 54), appears to be a state of this species in which the flames are replaced by irregular longitudinal strigations; it is said to come from the Gulf of California, and is equally unknown to me.

C. LIGULA, Duclos. Pl. 47, fig. 55.

Shell oblong, acuminated, smooth; whitish, yellowish, stone-color, etc., with three marbled or closely reticulated bands of chestnut or slate-color, sometimes interspersed with white spots, sometimes the bands are confluent, covering the whole surface or nearly all; aperture white, the outer lip plicate within, slightly notched and shouldered posteriorly. Length, ·8–1 inch.

Philippines, Solomon's and *Viti Islands.*

One of the most beautiful of the species and varying infinitely in the shades and disposition of the colors.

C. INDICA, Reeve. Pl. 47, fig. 56.

Shell with revolving grooves; white, with two series of revolving oblique chocolate spots; lip thickened, denticulated within.

Length, 11 mill.

India (Cuming).

C. IMPOLITA, Sowb. Pl. 47, figs. 57, 58.

Shell elongately turreted, spire plicately ribbed towards the apex; whorls flatly convex, fulvous chestnut, encircled above with a white band; aperture small, denticulated within.

Habitat unknown.

This species was described from a single worn specimen in the Cumingian collection. From this specimen, presumably, the two very different illustrations in Sowerby (fig. 57) and Reeve (fig. 58) were drawn. Sowerby figures and describes a shell with smooth spire-whorls.

C. VITTATA, Reeve. Pl. 47, fig. 59.

Shell acicular, fulvous, encircled with a single, superior, broad

chestnut band; whorls flatly convex, smooth; aperture small, lip simple. Length, 7–9 mill.

Iba, Province of Zambales, Luzon, Philippines (Cuming).

I have before me two specimens said to come from Australia which perfectly agree with the above shell except that the outer lip is toothed within; if they are of this species, they connect it with *C. impolita*.

C. INTEXTA, Gaskoin. Pl. 47, figs. 60–62.

Shell acicular, smooth, with revolving striæ at the base; white, longitudinally strigated and spotted with dark chestnut or chocolate; outer lip smooth, or slightly plicate within.

Length, 18 mill.

Darnley Isl., Torres Sts., N. Australia (Brazier).

The synonymy includes *C. fusillus*, Reeve (fig. 61) and *C. crepusculum*, Reeve (fig. 62).

C. ACHATINA, Sowb. Pl. 47, figs. 63, 64.

Shell smooth; yellowish white, marbled and longitudinally flamed with chestnut; whorls six, flatly convex, the body-whorl with basal revolving striæ; aperture brownish or violaceous, outer lip thickened and dentate within. Length, ·8 inch.

Swan River, Australia.

Sowerby's figure (fig. 63), which is decollated, is from an individual with more convex whorls than that represented by the (probably enlarged) figure in Reeve (fig. 64).

C. LINCOLNENSIS, Reeve. Pl. 48, fig. 65.

Shell smooth, shining, striate at the base; spire long, sharp pointed; whorls flattened; yellowish white, covered by a network of chestnut, sometimes sparsely, and frequently so close as to cause the surface to appear a uniform chestnut-color; aperture chestnut or violaceous within, the outer lip interiorly dentate.

Length, 12 mill.

Australia, Tasmania.

This is a common species; and may be a small variety of *C. achatina*—from which it hardly differs in form, and but little in coloring.

C. MENKEANA, Reeve. Pl. 48, fig. 66.

Narrowly acuminated, smooth, fulvous, encircled sometimes by an interrupted red band on the periphery, and another below

the suture; aperture short, wide below, with truncated canal; lip slightly notched above, faintly denticulated within.

Length, 15 mill.

Australia.

The spots on the bands are frequently arrow-shaped.

C. BELLA, Reeve. Pl. 48, fig. 67.

Shell fusiformly pyramidal, with long pointed spire, and rather flat whorls, separated by a well-marked suture; yellowish white, with chestnut longitudinal flames, a light band at the suture, with chestnut fasciculations, another light band on the periphery, bordered with chestnut spots. Length, 13 mill.

China.

C. BLANDA, Sowb. Pl. 48, figs. 68, 69.

Shell ovately pyramidal, smooth, polished, slightly striate at the base; outer lip shouldered and obscurely sinuate above, usually barely dentate within; white, with narrow, longitudinal, zigzag chestnut lines, which become darker at the suture, and especially on the back of the shell; interior whitish.

Length, 13 mill.

Africa (Solander).

C. adiostina, Duclos (fig. 69), a figured but undescribed species, ignored by subsequent monographers, appears to me to approximate to this form.

C. ALBINA, Kiener. Pl. 48, figs. 70, 71.

Shell oblong, smooth; body-whorl slightly shouldered at the suture, where it is sometimes rudely plicate on the back, base smooth or sparsely striate; outer lip much thickened, and dentate within; whitish, variously spotted, marbled or banded with chestnut, yellow or slate-color; aperture white or yellowish.

Length, 18 mill.

Philippines (Cuming), *Viti Isles* (Garrett).

C. MARGARITA, Reeve. Pl. 48, fig. 72.

Shell ovate, stout, with obtuse spire, smooth, somewhat swollen and wrinkled beneath the suture; yellowish white, with chestnut and opaque white maculations, sometimes obscurely banded and usually with a row of small chestnut spots defining a white or maculated subsutural band. Length, 10 mill.

Sandwich Islands.

Related to *C. albina*, but smaller, stouter, spire more obtuse, etc.

C. CRIBRARIA, Lam. Pl. 48, figs. 73–77.

Shell oblong-pyramidal, the apex usually truncated; reticulated with chestnut or chocolate and white, sometimes obscurely light-banded below the periphery; usually, the chocolate color predominates, so that the white appears upon it as a series of regularly disposed round white spots; interior of aperture white, in adults, the outer lip dentate within. Length, ·7 inch.

West Indies, Mazatlan to *Cape St. Lucas, Panama, Galapagos, Goree, West Africa, Ascension Isl.*

There can be no doubt of the large distribution of this species indicated by the above localities. The Seas of Java and Philippines have been also cited, but not with the same certainty as the others. The species appears to be equally common in the West Indies and in the subtropical waters of the West Coast of N. America. Gmelin's name, *Voluta ocellata*, has priority, but the species is so well known as *C. cribraria* that it would be inadvisable to change it.

C. argus, d'Orb (fig. 76), appears to be the juvenile state. *Buc. parvulum*, Dunker (fig. 77), is a synonym.

C. DELICATA, Reeve. Pl. 48, fig. 78.

Shell smooth and shining; yellowish white with a delicate close network of orange-red lines; lip slightly sinuated above, denticulated within. Length, 13 mill.

Guatemala.

Is perhaps only a variety of *C. cribraria*.

C. CERVINETTA, Carpenter.

The typical form was described from a single specimen ·27 inch long, the var. *obsoleta* from a juvenile and adult, the latter of which is ·19 inch long. The pattern of coloring is said to be like *C. cribraria*, but the spire is supposed to present distinctive features.

Mazatlan.

Not figured.

C. DALLI, E. A. Smith.

Shell fusiformly ovate, yellowish white, reticulated with pale brown, the interstices being of irregular shapes and sizes—or in other words, it is pale brown, closely spotted irregularly with yellowish white; epidermis very thin; apex eroded, remaining

whorls 6, flattish or scarcely convex, smooth, separated by a deep suture, giving the spire a slightly turreted aspect; last whorl feebly angular at the middle, contracted inferiorly, and striated around the extremity; aperture pale lilac within, occupying about three-sevenths of the entire length; outer lip arcuate, thickened, especially at the upper part; thin at the margin, and armed within the mouth with about 7 elongated tubercles; columella arched above, oblique at the base, with indications of one or two tubercles below the middle, covered with a thin whitish callosity; basal canal a little recurved.

L. 14, diam. 5·33 mill.; aperture 6 long, 2·5 broad.

Vancouver's Island.

This species is broader than *C. cribraria*, has a less acuminated and more turreted spire, and the color is much paler; the outer lip, too, does not exhibit nearly so distinct a superior sinus and the last whorl is more contracted at the base, forming more of a distinct basal canal with the lower extremity of the labrum.

The above is the full description of this unfigured species. The distinctive characters from *C. cribraria* do not appear to be very well marked, and the habitat given perhaps needs verification.

C. DÆDALA, H. Adams.

Shell narrow, elongate; pallid luteous, reticulated with chestnut and maculated with the same color at the suture; outer lip sinuated behind, not dentate. Length, 5 mill.

New Hebrides.

I have not seen this species; the description much resembles a small, well-covered *C. cribraria.*

C. OBLITA, Reeve. Pl. 48, fig. 78.

Shell minutely spirally striated throughout; transparent white, with longitudinal orange-brown streaks; aperture small, the columella excavated, the outer lip simple. Length, 8 mill.

Peru.

C. VELATA, Reeve. Pl. 48, fig. 79.

Shell ovate, smooth, shining; very densely reticulated with chestnut, whorls rather flattened; aperture small, lip denticulated within, slightly sinuated at the upper part.

Habitat unknown.

A smooth shell, of simple growth, veiled, as it were, with a very close network painting of dark chestnut.

I reproduce Reeve's description and figure; the type was in the Taylor collection. It looks very much like a well-covered specimen of *C. cribraria.*

C. FLEXUOSA, Lam. Pl. 48, figs. 81, 82.

Shell oblong, thick, smooth; whitish, with longitudinal chestnut-colored, flexuous lines; spire acuminated, volutions seven, (sometimes) furnished with a single row of small tubercles; aperture oblong-ovate, white within; internal teeth of the outer lip few and distant. Length, 18 mill.

Isle of France.

This is a very doubtfully identified species. Sowerby states that the only specimen he has seen was obtained from the Lamarckian collection by Mr. Cuming, and was tuberculated as above described: on the other hand the specimen figured by Kiener (fig. 81), as from the Lamarckian collection is smooth, and differs in other respects from Sowerby's example. The figures in Sowerby (fig. 82) and Reeve are so close to *C. Australis*, Gaskoin, as to strongly indicate specific identity—in which case, Lamarck's species would, of course, have priority.

C. EMARGINATA, Reeve. Pl. 48, fig. 84.

Shell ovate, rather stout, shining; whitish, banded and blotched with red-brown network, spirally bilineated towards the apex; spire rather short, sharp, whorls ribbed near the apex, then smooth; aperture small, lip conspicuously notched at the upper part, strongly denticulated within. Length, 10 mill.

Habitat unknown.

This shell, in the Cumingian collection, is said to be like *C. pulchella* (= *elegantula*) but more solid and more strongly colored, with a more than usual emargination of the lip.

C. MICANS, Pease. Pl. 48, fig. 85.

Shell smooth, polished, slightly striate at the base; spire-whorls flattened, apex acute; light purple, under fine chestnut streaks and reticulations, the sutures generally marked with a row of narrow white lines; aperture light purple within; outer lip dentate.

Paumotus Isles (Pease); *Viti Isles* (Garrett).

Apparently closely allied to the preceding species, but has smooth spire-whorls, and somewhat different coloring.

C. Brookei, Reeve. Pl. 48, fig. 86.

Shell fusiform, narrow, somewhat curved, smooth, linearly grooved at the base; yellowish, densely waved with chestnut streaks, stained darker at the base; aperture narrow, lip denticulated within.

Sarawak, Borneo (Mus. Taylor).

I am not acquainted with this species; the figure resembles the smooth variety of *C. zebra*, Gray, except that the spire is longer.

C. semiconvexa, Lam. Pl. 48, figs. 87–93.

Shell rather thick, smooth, striated at base; pale, longitudinally flamed and reticulated with red-brown; aperture roseate within; outer lip strongly dentate. Length, 8–18 mill.

S. Australia, Tasmania.

Varies considerably in form and coloring.

With this are to be placed as synonyms *C. rosacea*, Reeve (fig. 89), and *C. saccharata*, Reeve (fig. 90), short and long specimens which have lost their overlying reticulated pattern of chestnut spots and flames. *C. lutea*, Quoy (fig. 91), from Tonga-Taboo, is an unrecognized species, which may perhaps be a worn *C. semiconvexa;* very likely *C. polita*, Reeve (fig. 92), described from a single specimen in the Taylor collection, and without habitat, is also a synonym. *C. miltostoma*, Tenison-Woods, was described from a small specimen, six millimetres long; I have specimens (fig. 93) agreeing essentially with this description and eight mill. in length, strongly resembling *C. rosacea*, above; the two may constitute a minor variety, perhaps.

C. picta, Reeve. Pl. 48, fig. 94.

Shell ovate, rather thick, spire somewhat obtuse, smooth; reticulately flamed with chocolate and white; aperture rather small, narrow; lip thickened, denticulated within.

Length, 13·5 mill.

Habitat unknown (Mus. Cuming).

I think this will prove to be a color-variation of the last species.

C. Ticaonis, Sowerby. Pl. 48, fig. 95.

Shell ovate, turgid in the middle, with moderate spire, spirally striated; longitudinally marbled with pale yellowish and chestnut; outer lip thickened externally, its edge thin, with a few small denticles within. Length, 11 mill.

I. Ticao, Philippines; at 7 fathoms in sandy mud (H. Cuming).

"A bright, richly painted shell, rather more attenuately restricted at the base than is usual in this genus."—Reeve.

I am not acquainted with this species.

C. dictua, Tenison-Woods. Pl. 48, fig. 96.

Shell small, narrowly ovate, with acute spire, shining; closely angularly reticulated with yellow and brown, forming acute zigzag markings of equal width; aperture ovate, wide in front.

Length, 9 mill.

N. Tasmania.

The form is like a very small *C. semiconvexa;* there are no spots or cloudings of any kind. The species has not been heretofore figured; I am able to give an illustration from a specimen kindly communicated to me by Mr. C. E. Beddome of Hobart Town.

C. Australis, Gaskoin. Pl. 49, figs. 97, 98.

Shell fusiformly oblong, fulvous reticulated and blotched with chestnut, sometimes with an obscure covered broad white band at the suture and a narrower one below the periphery; body-whorl contracted below, with revolving striæ; outer lip usually denticulated within. Length, 15–18 mill.

New South Wales, Australia.

It is found under stones, at low tide, in company with *C. semiconvexa;* from which it is distinguished by its anterior contraction and (in fresh specimens) by its epidermal frill below the sutures. Sometimes the entire body-whorl is obscurely striate. The variability of the species is shown by the second figure.

C. Austrina, Gaskoin. Pl. 49, fig. 99.

Shell smooth, ivory-white, shining, with a broad red or rosy band on the periphery; lip notched above, strongly dentated within. Length, 13 mill.

Australia.

C. annulata, Reeve. Pl. 49, fig. 100.

Shell smooth, ivory-white, with a conspicuous narrow chestnut

revolving line, appearing on the spire-whorls; outer lip faintly sinuated above, denticulate within. Length, 13 mill.

Australia.

The form is the same as in *C. austrina*, the only difference being in the position and width of the colored band. I think that they will prove to be identical, and that both are described from worn specimens which have lost a more superficial coloring.

C. ARANEOSA, Gould.

Shell, form of *C. austrina*, but reticulated and maculated with fulvous and white; aperture violet-tinted. Length, 10 mill.

Kagosima Bay and *China Coast* (Stimpson).

Not figured. The types were, I suppose, destroyed in the great Chicago fire.

C. BUCCINOIDES, Sowb. Pl. 49, fig. 1.

Shell deep chocolate, nearly black, usually with a row of white spots on the periphery, and sometimes a less conspicuous similar row at the suture; aperture dark within. Length, 18 mill.

Peru; under stones at low water (Cuming).

C. AVENA, Reeve. Pl. 49, fig. 2.

Shell smooth, shining, striated below; reticulated, flamed and spotted with orange-chestnut and white; aperture violet-tinted, denticulated within. Length, 13 mill.

Buffalo, Cape Colony.

C. TENUIS, Gaskoin. Pl. 49, fig. 3.

Shell thin, with acuminated spire and inflated body-whorl, smooth, striated below; whitish, with bold flames and zigzag lines of orange-brown; aperture purplish, expanded below; outer lip thin, without teeth, sinuated posteriorly. Length, 14 mill.

Habitat unknown.

C. PULLA, Gaskoin. Pl. 49, figs. 4–7.

Shell acuminately oblong, dark chestnut or chocolate-color without and within, columella whitish or sometimes tessellated with chestnut; sometimes the surface is lighter-colored, and then it reveals an obscure reticulated pattern with faint spots at the suture and on the periphery; outer lip without teeth.

Length, 13 mill.

Port Jackson, Australia.

C. nux, Reeve (fig. 5), appears to be merely a somewhat stouter example of this species. *C. badia*, Tenison-Woods (fig. 6),

is also a synonym; and perhaps *C. Roblini* of the same author (fig. 7) also belongs here.

C. Russelli, Brazier. Pl. 49, fig 8.

Shell cylindrically oblong, somewhat fusiform, smooth; white, encircled with dark orange spots; on the last whorl there are two rows of spots, the upper row larger, the lower long and reticulated, those above the suture arrow-shaped; outer lip smooth within. Length, 4·5 mill.

Claremont Group, N. E. Australia.

Described from a single specimen.

C. tenebrica, Reeve. Pl. 49, fig. 9.

Shell smooth, dark fulvous chestnut, obscurely longitudinally streaked; whorls rather flattened; aperture small, interior dark chestnut, lip simple. Length, 9 mill.

Habitat unknown.

Said to be distinguished from *C. pulla* by its color-stripes and by the dark-colored columella. It is a doubtful species.

C. Tenisoni, Tryon. Pl. 49, fig. 10.

Shell ovate, sub-biconical, smooth, shining; pale chestnut very thickly ornamented with chestnut longitudinal lines, sometimes with two revolving bands of white spots; whorls five, somewhat flatly tumid, aperture ovate, acute posteriorly, outer lip thickened, dentate within. Length, 3 mill.

Tasmania.

The revolving bands are not present on the two specimens sent to me by Mr. Beddome, one of which I figure. The longitudinal coloring is so close and fine as to give the whole shell a dusky brown appearance, the markings being only distinguishable under a lens. Described by Mr. Tenison-Woods as *C. minuta*, a name preoccupied by Gould.

C. Angasi, Brazier. Pl. 49, fig. 11.

Shell smooth, yellowish with longitudinal flexuous chestnut lines, interrupted at the suture and on the periphery by yellowish bands with scolloped borders; aperture white, lip dentate within. Length, 5 mill.

South Australia.

Described by Angas as *C. interrupta*, a name preoccupied by Gaskoin. Mr. Crosse has united the preceding species with this,

but upon a comparison of specimens I am not able to arrive at a like conclusion. Mr. Andrew Garrett writes to me that *C. Vitiensis*, Dunker, has been referred here by one of his English correspondents.

C. ZEBRA, Gray. Pl. 49, figs. 12–14.

Shell oblong, somewhat pyramidal, either smooth, or the upper part of the body-whorl and spire obscurely tuberculately folded, striate below; white with zebra-like longitudinal chestnut markings, more or less interrupted or broken up into spots; folds, when present, usually colored; interior slightly violet-tinted; outer lip smooth or barely dentate within. Length, 9–13 mill.

New Zealand, Japan, Paumotus, Sandwich Islands.

With this species must be united *C. Pacifica*, Gask. (fig. 13), and *C. miser*, Sowb. (fig. 14). There can be no doubt of the extensive distribution indicated above.

C. DUNKERI, Tryon. Pl. 49, fig. 15.

Shell smooth, ovate-conic, sulcate at the base, apex acute; color variable, rosy or orange, or white, reticulated or undulated, banded or maculated with chestnut; aperture light violet or white, the lip thickened and dentate; operculum purpuroid. Length, 7–13 mill. *Japan.*

Very variable in both coloring and form, and referred by Dunker, who described it under the name of *varians*, to the genus *Amycla*. As I do not recognize the generic distinctness of *Amycla*, I am compelled to change the name—that of *varians* having been used for a *Columbella*, many years earlier, by Sowerby.

C. BURCHARDI, Dunker. Pl. 49, fig. 17.

Shell smooth, with fine revolving striæ, becoming more distinct towards the base; lip thickened, slightly sulcate within, externally subvaricose; white, undulated or irregularly maculated with chestnut. Length, 15–18 mill.

Japan.

C. HANLEYI, Desh. Pl. 49, fig. 16.

Shell small, ovate-conic, smooth; white variegated and marbled with chestnut; aperture white within; lip thickened and quadridentate within. Length, 9 mill.

I. Bourbon.

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C. COMPTA, Lischke. *Japan.*

Described from a single, juvenile specimen, and not figured.

C. SCRIPTA, Linn. Pl. 49, figs. 18–21.

Shell smooth, shining, yellowish white, usually marbled or broadly longitudinally striped with chestnut or chocolate-color; interior of aperture often yellowish or brownish; outer lip somewhat thickened, denticulated within. Length, 10–13 mill.

Mediterranean, littoral; fossil in European tertiaries.

The synonymy of this species is very large, including *C. corniculata*, Lam. (fig. 19), *C. Gervillei*, Payr. (fig. 20), sometimes considered a variety, *C. Crossiana*, Recluz (fig. 21), and *C. Brisei*, Brus. = var. *coccinea*, Monterosato.

C. MARTENSI, Lischke. Pl. 49, fig. 22.

Shell turreted subulate, smooth, under a corneous epidermis; whitish with undulating lines or flames of chestnut, frequently forming articulated bands at the suture, and on the middle and base of the body-whorl; lip acute, thickened and dentate within. Length, 20 mill.

Japan.

Allied in form, and frequently in coloring, to *C. scripta*, Linn.

C. LUNATA, Say. Pl. 49, fig. 23.

Whorls six, nearly smooth, with usually a single revolving line below the suture, and a few around the base; suture not deeply impressed; aperture narrow, slightly angulated above, and shortly channeled below; lip simple, dentate within; color reddish brown or yellowish, with one or more series of sublunate white spots on the body-whorl; occasionally uniform reddish brown, or with sublunate dark markings. Length, 5 mill.

Massachusetts to Florida.

Animal pale whitish; foot linear, nearly as long as the shell, acute behind, truncate in front; proboscis more than half the length of the shell, obtuse at tip with a brown annulation and another at the base; tentacula short, cylindrical, annulate with blackish on the middle; eyes black, at the base of the tentacula. *C. Wheatleyi*, De Kay and *C. Gouldiana*, Agassiz, are synonyms.

C. ZONALIS, Linsley. Pl. 49, fig. 24.

Shell small, ovate-conical, longitudinally substriate, fuscous,

often with three white zones; whorls five, flattened; aperture about half the total length. Animal white. Length, 4·5 mill.

New England.

Differs in coloring and form, being more attenuated, and in the want of inferior revolving lines from *C. lunata*—which attains about the same dimensions. This species is better known under the name of *C. dissimilis*, Stimpson, *C. zonalis* having been described from an immature shell.

C. DERMESTOIDES, Kiener. Pl. 49, fig. 25.

Shell smooth, shining, of five or six whorls, covered with reddish ocellations and banded with alternate white and reddish spots on the periphery; outer lip thin, slightly dentate within.

Length, 8 mill.

West Indies.

Kiener gives the Mediterranean Sea as locality, which is an error; as well as Angas' identification of an Australian species with it. Reeve's figure scarcely represents the shell. Compare with *C. moleculina*, Duclos.

C. SPIRANTHA, Ravenel.

Shell small, ovate-conic; smooth, except at the base, where there are a few revolving lines; whorls seven, in mature specimens, nearly flat, with the suture distinct; color brown, with a series of irregular triangular spots of a dull yellow; sometimes the general color is dull yellow, with brown waving lines, marking off the whorls with the irregular spots; aperture oval, about one-third the length of the shell, with a slight recess at the posterior angle, and a short canal in front; brown with a few teeth within the outer lip, and a smooth slight callus on the pillar.

Length, 4 mill.

Wando River, So. Carolina.

Animal white; proboscis half the length of the shell; foot a little longer than the shell, narrow, wider in front; posterior end quite narrow but not pointed; operculum small, on posterior end of foot; head projecting from the foot, with tentacles one-third the length of the shell, very delicate, almost hair-like, with small black eyes at the base. Animal active, keeping the proboscis in constant motion, while the tentacles are little used.

This shell is like *C. lunata*, Say, but is narrower in proportion

to its length ; the aperture is shorter and differently shaped, the pillar being straighter and the denticulations of the outer lip stronger. The animals differ; the tentacles of *C. spirantha* are delicate and hair-like, while in *C. lunata* they are rather thick for the size of the animal.

I copy Ravenel's description above in full. It is evidently a critical species, and Stimpson considered it a doubtful one. It has never been figured, and our specimens (not received from Ravenel, although from the vicinity of his locality) are entirely too close to *C. lunata.*

C. NIVEA, Ravenel.

Shell small, delicate, elongated-conic, white, immaculate, smooth, polished, prettily striated on the outer part of the canal, body-whorl longer than the spire, suture distinct, with a white revolving line a little below it on the whorls ; pillar covered with callus, much hollowed, suddenly becoming straight to form the canal ; callus ending in a distinct edge ; outer lip a little thickened, sparsely denticulated within, the posterior tooth being decidedly the most prominent.

Allied to *rosacea*, Gould, and *lunata*, Say. A single specimen taken from the stomach of a fish.

Off Charleston Bar, S. C.

The above is a copy of the original description. I know nothing of the species—which is unfigured. The specific name is preoccupied by Sowerby.

C. FENESTRATA, C. B. Adams.

Shell much elongated, ovate conic, subangular on the middle of the last whorl ; opaque white around the aperture, with, at the summit of the whorls, a spiral opaque white band, which is interrupted by the angles of an approximate series of brown spots, which have the form of the summits of Gothic windows, and in which the deep brown of the summit fades in descending to the middle of the whorls, where the shell is transparent ; with three linear spiral series of alternating white and brown on the middle and anterior part of the last whorl ; with spiral striæ anteriorly, otherwise smooth ; apex acute, spire with nearly rectilinear outlines ; whorls eight, nearly plane, with a slightly impressed

suture; aperture obliquely oval; labrum thickened and well excurved, smooth within, sinuate above

L. ·25 inch, of spire ·16 inch, diam. ·08 inch.

West Indies.

Unfigured. I have not seen specimens of this species.

C. Duclosiana, d'Orb. Pl. 50, fig. 26.

Shell oblong, subfusiform, smooth, striated below; spire elongated, conical, with apex acute, and composed of seven flattened whorls; mouth narrow, flexuose, with a thickened, internally dentate lip; white or yellowish white, sometimes prettily maculated with red near the suture. Length, 4 mill.

West Indies.

The figure represents a wider shell but with coloring not unlike the "Gothic window summits" of the preceding species; the description also indicates a longer spire than shown by the figure: so that the two descriptions may possibly be of varieties of a single species. Should they prove to be identical Adams' name would have priority. The above specific name is preoccupied by Sowerby.

C. avara, Duclos. Pl. 50, figs. 27, 28.

Shell pellucid white, with opaque white spots and an indistinct narrow band on the periphery; columella plicated.

Length, 8 mill.

Habitat unknown.

Of course this is a very different shell from *C. avara*, Say, which it is possibly intended to represent, and if a good species it must receive a new name. One of the figures, representing the back of the shell, has numerous minute brown dots.

C. turbida, Duclos. Pl. 50, fig. 29.

Shell yellowish, longitudinally strigated and reticulated with chestnut; columella biplicate, outer lip dentate within.

Length, 8 mill.

Habitat unknown.

Perhaps identical with the preceding species.

C. uvania, Duclos. Pl. 50, fig. 30.

Smooth, with produced spire and apparently channeled suture; outer lip greatly thickened and dentate within, inner lip plicate below; light yellowish brown, with an interrupted band of large

irregular white spots at the suture, and a similar one on the periphery. Length, 12 mill.

Habitat unknown.

C. ANGELIA, Duclos. Pl. 50, fig. 31.

Shell slender, with produced spire, striate at base, otherwise smooth; outer lip with an external varix, numerously toothed within; orange-red, including the interior.

Habitat unknown.

No size-marks are given on the plate of Chenu in which this species is figured, but there can be no doubt that the figure (as well as those of the other species) is considerably magnified.

C. ORPHIA, Duclos. Pl. 50, figs. 32, 33.

Shell chocolate, with large irregular maculations and smaller spots of white, the latter chiefly at the base of the body-whorl. Length, 7 mill.

Habitat unknown.

This, as well as the several preceding and succeeding species, figured but not described by Duclos, have not been identified by subsequent monographers, and remain unknown. *C. ilaira*, Duclos (fig. 33), is perhaps only an older specimen, having one more whorl, measuring 9 mill., and not differing essentially in either form or coloring.

C. PSILLA, Duclos. Pl. 50, figs. 34–36.

Bright chestnut, covered by numerous small white spots, with a band at the suture and another on the periphery composed of larger square spots. Length, 6 mill.

Habitat unknown.

Var. PHILODICIA, Duclos. Pl. 50, figs. 35, 36.

I suppose that this is a mere color-variety. The ground-color is lighter, the spots are present, the sutural band is absent, and there is only a slight indication of a light band on the periphery; in one of the specimens figured the spots coalesce into irregular longitudinal stripes.

C. PHILIA, Duclos. Pl. 50, fig. 37.

Shell pale yellowish brown, peculiarly clathrate with narrow light chestnut lines, heavier at the intersections.

Length, 4·5 mill.

Habitat unknown.

C. JAPIX, Duclos. Pl. 50, fig. 38.

Shell light yellowish brown, with two moderately broad bands of reticulated chestnut lines, the upper one reappearing on the spire-whorls. Length, 6 mill. *Habitat unknown.*

C. AURANTIACA, Dall. Pl. 50, fig. 39.

Minute, fusiform, smooth, with five slightly rounded whorls; generally orange-yellow, semitranslucent and without markings, but occasionally darker, or with zigzag brown lines leaving a light central band and light sutural maculations; outer lip slightly sinuated, hardly striate within. L. ·18 in.; lat. ·08 in.

Monterey, Cal., Todas Santos Bay, L. Cal.

C. TUBEROSA, Carpenter. Pl. 50, figs. 40, 41.

Shell smooth, whorls six, rather flat, the body-whorl having an obtusely angulated periphery; nucleus white and smooth, flat on the top, not swollen. Length, 7–8 mill.

Sta. Barbara, San Diego, etc., California.

Larger than the preceding species, and angulated; the nucleus also differs, that of *C. aurantiaca* being regularly fusiform. The coloring is very variable, varying from white to dark chocolate, either uniform or with a light central band and sutural maculations, and sometimes with nebulous or zigzag markings.

Var. VARIEGATA, Stearns. Fig. 41.

Shell usually somewhat more slim than the type, and with consequently less angulation of the periphery; the central light band is more or less broken up into white spots, smaller than the sutural maculations.

C. CHRYSALLOIDEA, Carpenter. Pl. 50, fig. 42.

Shell cylindrically oblong, shining, whorls seven, slightly rounded, covered with microscopic spiral lines; yellowish to chocolate; lip scarcely thickened and very slightly dentate within. Length, 8 mill. *Southern Coast of California.*

C. BABBI, Tryon. Pl. 50, fig. 43.

Shell ovate or oblong-cylindrical, thin, transparent, shining, very faintly tinged and flamed with orange, apex pink; aperture short, lip rather thickened, notched at the upper part, scarcely denticulated. Length, 10 mill.

Gulf of California (Mr. Babb, R. N.).

Described and figured by Reeve as *C. lactea*, Kiener—which is a very different species, originally figured by Duclos; I am therefore compelled to change the name, and call it after the gentleman who collected the Cumingian type specimen. Although revolving striæ are neither described nor figured by Reeve, I think it not improbable that this will prove to be identical with *C. chrysalloidea*, Cpr.

C. NASUTA, Menke.

Ovately fusiform, smooth, with revolving striæ at the base; spire conically turreted, acuminate; yellowish-white, with superior triangular chestnut-colored maculations and longitudinal flexuous lines; lip thickened and gibbous in front, denticulate within. L. 9·8 lin., apert. 5·5 lin., lat. 4 lin.

Mazatlan.

An unfigured species, which has not been recognized by Carpenter or subsequent students.

C. MARQUESANA, Gaskoin, Pl. 50, figs. 44–47.

Earlier whorls very faintly minutely costate, balance smooth, shining, last one with revolving striæ at base; yellowish white, encircled with narrow chestnut lines or sometimes irregularly maculated with chestnut, tip of spire rosaceous. Length, 10 mill.

Polynesia, Viti Is., Paumotus, Borneo, Loo Choo, Hong Kong, New Caledonia.

Very variable in coloring, which has occasioned a number of synonyms. These are *C. tæniata*, Ads. and Reeve, not Phil. (fig. 46); *C. lineolata* and *decolor*, Gould (unfigured), referred here by Carpenter after an examination of the types; *C. flammea*, Pease (unfigured); *C. sublævis*, Montr. (fig. 47).

C. BICINCTA, Gould.

Shell ovate, small, turreted, thin, smooth, ash-color with two fulvous bands; whorls eight, slightly convex, suture impressed; aperture lunate, lip arcuated, acute, dentate within, columella violaceous, with thin callus, and tuberculated anteriorly.

L. 10, diam. 4+ mill.

Hong Kong Harbor, 10 fathoms, shelly sand (Stimpson).

Unfigured, and unknown to me.

C. AZORA, Duclos. Pl. 50, fig. 48.

Shell wide ovate, spire and upper part of body-whorl longitu-

dinally obscurely ribbed, the ribs usually obsolete, or surface sometimes quite smooth; yellowish, flecked with white, especially on the ribs or nodules, with three necklace-like rows of small chestnut spots. Length, 8–9 mill.

Seychelles, Mauritius.

C. albinodulosa, Gaskoin, is a synonym, but the only figure of it, in Reeve's Iconica, is not at all characteristic, and resembles closely the next species.

C. Legrandi, Tenison-Woods. Pl. 51, fig. 49.

Shell small, subulate, thin, shining chestnut, girdled at the suture with a band of snowy spots, shaded with fulvous brown; apex mammillate; whorls six, elongate, convex, very finely transversely lined; aperture elongately ovate; outer lip thin, simple. L. 7·5, diam. 2 mill. *Tasmania.*

My figure is drawn from one of the type specimens; it is a smaller, narrower shell than the last species.

C. Xavieriana, Tenison-Woods. Pl. 51, fig. 50.

Shell elongated fusiform, smooth, striated at the base; whorls eight, rather flattened; lip thick, plicate within; orange-brown, conspicuously and broadly maculated with chestnut—which under the lens is sometimes seen to be flecked with white.

L. 12, diam. 4 mill. *Tasmania.*

Figured from the type specimen, through the kindness of Mr. C. E. Beddome of Hobart Town.

C. alba, Petterd.

Shell attenuately fusiform, shining, white faintly tinged with chestnut, regularly transversely striate all over; whorls six, flatly convex; aperture narrowly ovate, inner portion faintly thickened, outer lip thin. L. 7, diam. 3 mill.

Blackman's Bay, Tasmania.

Unfigured. "The regular transverse striæ is a character by which it can be easily recognized."

C. choava, Reeve. Pl. 51, fig. 51.

Shell ovate, smooth, yellowish, freckled or longitudinally waved with chestnut; lip slightly thickened in the middle and dentate within. Length, 6 mill.

New Zealand.

C. flexuosa, Hutton (unfigured) is a synonym.

C. PELLUCIDA, Reeve. Pl. 51, fig. 52.

Shell ovate, obliquely expanded towards the base, transparent, smooth, spotted and flamed with orange-chestnut; spire rather short, acuminated; aperture ovate, columella excavated, lip varicose, purple-stained within, crenated, one-toothed at the upper part. Length, 8·5 mill.

Habitat unknown.

Has somewhat the form of a Nassa, and is so transparent as to show the columella through the shell.

C. LINEOLATA (Pease), Brazier. Pl. 51, fig. 53.

Shell elongately ovate, smooth, shining; whorls six, the last grooved at the base; columella tridentate, outer lip very slightly thickened, smooth or barely dentate within; openly reticulated with fine chestnut lines, with an irregular band of the same color encircling the last whorl, and maculated with white; this band appears above the suture on the whorls of the spire; there is also a chestnut band towards the base of the body-whorl.

Length, 7–9 mill.

New South Wales, Australia.

This species was first described by Mr. W. H. Pease as *C. maculosa*, a name preoccupied by Sowerby, having been previously confused by Mr. Angas with *C. dermestoides*, Kiener, and by Mr. Brazier with *C. lineata*, Pease—which, apparently by a slip of the pen, he writes *lineolata*. Pease's description of *lineata* (I have no specimen, and it has not been figured) scarcely covers this form, and I therefore give the species the name under which it is so well known to Australian collectors.

C. LINEATA, Pease.

Shell small, solid, fusiform, turreted, whitish or variously marked with reddish brown; spire acute; whorls plano-convex, smooth, the last somewhat ventricose, and spirally striated at the base; canal produced; sutures faintly impressed; outer lip thickened by a stout outer varix and dentated within; columella smooth, strongly arched; aperture small, tortuous.

Sandwich Islands.

Unfigured, and unknown to me. See remarks under preceding species.

C. INSCRIPTA, Brazier.

Shell somewhat oblong, ovate, smooth, whitish, ornamented with a reddish brown network, darker and broader towards the centre; whorls seven, slightly convex, suture impressed, marked below with white ovate blotches, then small narrow ones having a transverse chestnut line between every alternate one; spire lengthened, apex acute; aperture long, wide, interior ivory-white, columella thickened, varicose on the outside, having three prominent little tubercles on the inside, peristome arcuated, upper part sinuated, denticulated within, canal short, narrow.

L. 8, diam. 4 mill.

North Australia, New Guinea.

An unfigured species, certainly very closely allied by its markings to *C. lineolata* (Pse.), Brazier.

C. MARIÆ, Brazier.

Shell acicular, club-shaped, smooth, yellowish brown, minutely marked with oblong white spots; whorls nine, flattened; centre of last encircled with a chain of brown and white alternate spots, reappearing on the spire contiguous to the suture; below the suture transparent; spire lengthened, apex acute; aperture long, narrow, peristome thin, thickened behind, edged with brown, interior white, denticulated, sinuated at the upper part, columella varicose, canal short, recurved. L. 10, diam. 4 mill.

Hall Sound, New Guinea.

One fine living specimen found. Not figured.

C. PUDICA, Brazier.

Shell club-shaped, thinnish, variously mottled with brown, sometimes having minute white spots, or with white and brown flames above and below the suture; whorls eight, angularly spiral, convex, suture slightly tabled, transparent, spire long, apex white, acute; columella curved and varicose at the lower part, peristome thin at edge, very much thickened within, having from two to three small obtuse teeth, sinuated above, canal short, slightly recurved. L. 6, diam. 2 mill.

Darnley Isl., Torres Sts., Australia, 20 to 30 fms., white, sandy bottom (Brazier).

Unfigured.

C. LÆTA, Brazier.

Shell ovate, smooth, acuminated at both ends, fulvous; whorls six, spirally angled, slightly convex, transparent white at the angle, marbled above and below with dark fulvous lines, sometimes flexuously waved; spire short, apex white, rounded; aperture narrow, little more than half the whole length, canal narrow, slightly recurved, columella smooth, curved, grooved in the middle, inner part forming a sharp lip below upper part, with thin deposit of callus, varicose below on the outside, peristome white, thin at edge, gibbous in the middle. L. 4, diam. 1·5 mill.

Darnley Isl., Torres Sts. With the preceding species.

Unfigured.

C. FORMOSA, Gaskoin. Pl. 51, fig. 54.

Shell ovate, smooth, shining, pale pink, encircled round the middle, and again near the base with faint bands of chestnut network; whorls flatly convex; aperture rather small, columella excavated, lip simple. Length, 10 mill.

Habitat unknown.

C. NUBECULATA, Reeve. Pl. 51, fig. 55.

Shell oblong, ovate, smooth, yellowish white, variously mottled with orange-brown; apex violet-tinted, whorls convex; aperture small, lip notched at the upper part, prominently toothed within.

Habitat unknown.

Rather obscurely clouded in respect of coloring, which inclines towards the base to form a fine network.—REEVE.

C. BIFLAMMATA, Reeve. Pl. 51, figs. 56, 57.

Shell cylindrically ovate, smooth, shining, whitish, densely flamed throughout with orange-brown, spire rather obtuse, whorls convex; aperture small, columella slightly excavated, lip varicose, faintly notched at the upper part, denticulated within.

Habitat unknown.

Encircled with two bands of longitudinal orange-brown flames, quite peculiar and uniform in character.—REEVE.

C. YORKENSIS, Crosse. Pl. 51, fig. 58.

Shell oblong, acuminated, smooth, striate at base; white, with some pale red longitudinal stripes, under a greenish yellow epidermis; whorls nine, nearly flat; aperture oblong, slightly

flexuous and white, columella with some slight granulations, outer lip simple, a little thickened, and denticulated within.

Length, 19 mill.

York Peninsula, Australia

A larger shell than *C. Tayloriana*, Reeve.

C. ISABELLINA, Crosse. Pl. 51, fig. 59.

Shell elongated fusiform, smooth, yellowish brown, under a thin epidermis of the same color; aperture pale violet, the outer lip with obtuse interior denticulations. L. 8, diam. 3 mill.

Habitat unknown.

C. TAYLORIANA, Reeve. Pl. 51, figs. 60–62.

Shell solid, ovate, smooth, shining; epidermis smooth, thin, greenish yellow; color of shell white, finely reticulated with chestnut and flamed or spotted with chestnut on the spire and upper portion of the body-whorl, suture with opaque white and chestnut spots; lip moderately thick, denticulated within.

Length, 10 mill.

Southern Australia.

A somewhat variable shell both in form and coloring, as shown by numerous specimens before me. I agree with the Australian conchologists that *C. albomaculata*, Angas (fig. 62) is a synonym.

C. ALBUGINOSA, Reeve. Pl. 51, fig. 63.

Shell ovate, smooth, shining, transparent white, reticulated with orange-brown, with a central light band; whorls flatly convex, the last somewhat twisted and grooved; aperture small, lip simple, slightly notched at the upper part. Length, 10 mill.

Habitat unknown.

The type of this species formed part of the Taylor collection.

C. INTERRUPTA, Gaskoin. Pl. 51, fig. 64.

Shell ovate, attenuated at both ends, rather solid, white, encircled above and below by bands of crescent-shaped chestnut spots; spire somewhat turreted, whorls encircled by a groove round the upper part, the body-whorl deeply grooved towards the base; aperture rather narrow, lip slightly notched at the upper part, denticulated within. Length, 10 mill.

Habitat unknown (Taylor collection).

C. ABYSSICOLA, Brazier. Pl. 51, fig. 65.

Shell oblong, pyramidal, smooth; whorls eight, flatly convex,

round shouldered; yellowish white, spirally encircled on the periphery with yellowish brown broad arrow-shaped markings, the points showing to the right, marked as four arrows placed one behind the other, opaque between, every alternate space arrow-shaped, last whorl below having the markings more numerous and close-set; aperture oblong ovate, white, canal narrow, short, peristome thickened in the middle, strongly denticulated within.

Length, 3·5 mill.

North Australia, New Guinea (Brazier).

I figure an example of this elegant little species from one of several specimens obligingly communicated by its author.

C. CINCINNATA, von Martens. Pl. 51, fig. 66.

Shell smooth, oblong, shining, grayish white, with narrow, longitudinal undulating chestnut lines, and maculations of opaque white, in a double series; apex rose-violet; outer lip without teeth? Length, 3 mill.

Mauritius.

Probably not adult.

C. ASOPIS, Duclos. Pl. 51, fig. 67.

Shell smooth, yellowish, irregularly and openly reticulated by light chestnut; lip externally thickened, dentate within; columella rugose.

Habitat unknown.

The figures of this unrecognized species are evidently greatly magnified, but, like all the others upon the same plate there is no accompanying size-mark.

Section V. **Atilia,** H. and A. Adams.

Shell fusiform, smooth or longitudinally plicate; spire elevated, sharp; last whorl suddenly narrowed into a beak or short canal in front.

C. MINOR, Scacchi. Pl. 51, fig. 68.

Shell smooth, striated at the base; yellowish brown, more or less indistinctly marbled with a darker color, with sometimes a light band on the periphery; outer lip slightly dentate within.

Length, 9–12 mill.

Mediterranean Sea.

C. NYMPHA, Kiener. Pl. 51, fig. 69.

Shell elongated, smooth, striate at the base; yellowish, with

longitudinal chestnut lines ; aperture yellowish within, the outer lip stained brown and denticulated on the inner margin.

Length, 12·5 mill.

Seychelles Is.

C. FILICINCTA, Tapparone-Canefri.

Shell acicular, contracted and striate at the base ; pallid fulvous, with longitudinal darker strigations, and a band of articulated fulvous and white on the periphery ; aperture narrow, fulvous, the outer lip thickened. Length, 9 mill.

New Guinea.

Described from a single specimen and not figured. The description brings it very close to *C. nympha.*

C. ARTICULATA, Souverbie. Pl. 51, fig. 70.

Shell yellowish, with curved longitudinal darker strigations and an articulated band of chestnut and white spots on the periphery—which is apparent on the spire-whorls ; outer lip emarginate above, acute, varicose externally, dark margined and plicate within. Length, 10·5 mill.

New Caledonia.

Only a single specimen obtained. The coloring is very close to that of the last species. I suspect that it is only a variety of *C. nympha.*

C. MINDOROENSIS, Gaskoin. Pl. 51, figs. 71, 72.

Shell ivory-like, smooth, striate below ; whitish, with narrow flexuous zigzag chestnut lines ; lip slightly dentate within.

Length, 10 mill.

Puerto Galero, Isl. of Mindoro, Philippines, in coarse sand, at a depth of about 12 fathoms (Cuming).

Persian Gulf (Issel).

C. Doriæ, Issel (fig. 72) appears to be a synonym.

C. BACULUS, Reeve. Pl. 52, fig. 73.

Shell solid, with flattened whorls and obtusely angulated periphery, below which the body-whorl has revolving striæ ; whitish filleted and spotted with orange or chestnut, sometimes showing a row of spots on the periphery ; outer lip thickened, plicate within.

China Seas; Australia.

C. PUNGENS, Gould. Pl. 52, fig. 74.

Shell small, lanceolate, polished, with numerous minute longi-

tudinal plications, the lower part of the body-whorl with revolving striæ; whitish, marbled with yellowish brown. Length, 10 mill.

Port Lloyd, Bonin Islands (Stimpson).

I give a figure from a specimen in the Philadelphia collection, received from Stimpson.

C. PLUTONIDA, Duclos. Pl. 52, fig. 75.

Shell whitish, with obscure chestnut or slate colored reticulations. Length, 7 mill.

Habitat unknown.

Figured by Duclos, with name, but no description.

C. PRETRII, Duclos. Pl. 52, fig. 76.

Whorls flattened, with deeply impressed sutures, longitudinally plicate; white, broadly banded with chestnut, lower part of body-whorl chestnut. Length, 7·5 mill.

Habitat unknown.

Figured, but not described by Duclos.

C. IONTHA, Ravenel.

Shell fusiform, strong, small, with nine flat, longitudinally ribbed whorls, and deeply channeled sutures; lower part of body-whorl with revolving striæ, which upon the ribs give place to revolving colored lines and clouds; outer lip considerably enlarged, sparsely denticulated within; aperture small, rather wide, the pillar lip much hollowed above, suddenly becoming straight to form the canal. Length, 6+ mill.

Charleston Bar, So. Carolina.

A single specimen from the stomach of a black-fish. Is very probably synonymous with *C. Hotessieri*, d'Orb., and *C. Pretrii*, Duclos. In the event of their proving identical, the latter name must be adopted, having priority of publication.

C. HOTESSIERI, d'Orb. Pl. 52, fig. 82.

Shell oblong, thick, with wide longitudinal plications and revolving striæ; spire sharp, composed of seven, flat whorls, separated by a crenulated suture; mouth narrow, sinuous, the thickened lip six-tuberculate, the columella slightly folded; yellowish white, more or less marked with chestnut.

Length, 7 mill.

Guadeloupe, West Indies.

See remarks under preceding species.

C. CONSPERSA, Gask. Pl. 52, figs. 77–81.

Spire and upper part of body-whorl more or less obsoletely and distantly plicate; white, marbled and reticulated with chestnut, forming a white band at the suture and another on the periphery; body-whorl strongly contracted, with revolving striæ below; lip externally varicose, dentate within, the margin sinuous behind; columella conspicuously folded, the upper fold largest; canal recurved. Length, 12–15 mill.

Philippines, N. E. Australia, New Caledonia, Andaman Is.

The original figures of *C. iodostoma*, Gask. (fig. 78), and *C. puella*, Sowb. (fig. 79), are more strongly plicate and darker colored than many of the specimens before me, yet they are undoubtedly synonymous with the smooth form of *C. conspersa*, from which the original figure and description of that species were made. I add a figure from a specimen (fig. 80) of a nearly smooth example, showing a usual state of the species. *C. contaminata*, Gask. (fig. 81), is to be referred here.

C. SUGILLATA, Reeve. Pl. 52, fig. 86.

Shell ovate, livid brown or purple, spire turreted, whorls tubercularly ribbed round the upper part, tubercles white; aperture somewhat squarely ovate, lip slightly varicose, angled at the upper part, denticulated within. Length, 12 mill.

China Seas, Philippines.

C. SAGITTA, Gaskoin. Pl. 52, figs. 83–85.

Shell narrow, smooth, shining; pale brown, longitudinally strigated, maculated or reticulated with chestnut, with usually a band on the periphery and sometimes another at the suture, articulated with white and chestnut, sometimes sagittiform.

Length, 8 mill.

Sandwich Islands, Paumotus, Viti Islands, Solomon's Is.

This species was described as from Africa and West Indies, but these habitats have not been confirmed; on the other hand the description applies closely to a common Polynesian species, and this identification is concurred in by a number of conchologists. The only figure of the species hitherto given is by Reeve; it is a poor representation of the usual state of the shell besides being three times its size without any mention of its having been enlarged. I give this figure, however (fig. 83). Pease de-

scribed it as *C. pusilla*, and finding that name preoccupied changed it to *C. fusiformis*, which was also preoccupied five or six times by different authors. *C. galaxiàs*, Reeve (fig. 84), is a synonym; as is also probably *C. doliolum*, Tapparone, an unfigured species from New Guinea. *C. Carolinæ*, E. A. Smith, from Strong Island, Solomon Archipelago, is exactly equivalent to the figure of *C. galaxias*, Reeve; my specimens being part of the original lot of *Carolinæ*. Mr. Smith's figure (fig. 85) does not agree with his description.

C. MERITA, Brazier.

Shell thin, acicular, much contracted at the base, yellowish white; whorls eight or nine, flattened, minutely tabled at the suture, ornamented with roundish opaque white spots, below the suture and between the spots two narrow transverse reddish yellow lines one above the other; the lower having longitudinal lines of the same color running down, divided with a white band on the centre of the last whorl, spire very much lengthened, aperture pear-shaped, peristome thin, sinus at upper part, columella varicose, canal short, narrow. L. 7, diam. 2·5 mill.

Darnley Isl., Torres Sts., Australia; 30 fms., white, sandy bottom (Brazier).

The above is a copy of the original description. I have not seen the species—which is unfigured.

C. ALABASTRUM, Reeve. Pl. 51, fig. 14.

Shell fusiform, alabaster-white, white banded on the subangulated periphery, sparingly marked with chestnut blotches.

Length, 8 mill.

Habitat unknown (Reeve). *Mauritius* (Martens).

The type formed part of the Taylor collection. It is a very doubtful species. Von Martens has figured a shell from Mauritius to which he applies this name with some doubt.

C. NIVEOMARGINATA, E. A. Smith. Pl. 52, fig. 91.

Shell grayish white, with an opaque white band spotted with chestnut at the top of the whorls, and a narrower one around the middle of the last whorl, the rest of the surface being marked with opaque white in an irregularly closely reticulating manner; whorls smooth, the third and fourth costate; suture deep;

making the spire appear somewhat turreted; lip externally thickened, tuberculate within, sinuate above. Length, 11 mill.

Japan.

Described from a single specimen.

C. LISCHKEI, E. A. Smith. Pl. 52, fig. 90.

Shell smooth, third and fourth whorls of the spire strongly costate; last whorl subangulate on the periphery, contracted below, with revolving sulci; outer lip with interior plications and an external varix; dirty white, blotched at intervals with chestnut-brown, the blotches extending from suture to suture.

Length, 11 mill. *Japan.*

Allied to *C. alabastrum*, Reeve, but has more numerous and shorter whorls, and differs in coloring.

C. FUSIFORMIS, d'Orb. Pl. 52, fig. 88.

Shell fusiform, smooth, with revolving striæ below; spire elongated, sharp; lip dentate within. Length, 6 mill.

Jamaica, Martinique.

C. RORIDA, Reeve. Pl. 52, fig. 89.

Shell transparent white, glassy, encircled round the middle with a row of milk-white spots; lip simple. Length, 7 mill.

Lord Hood's Isl. (found on *Avicula margaritifera*, in coral sand at the depth of six fms.) (Cuming). *Viti Is.* (Garrett).

C. tessellata, Dunker, and *C. pellucida*, Pease, are synonyms; neither of them is figured.

C. SOLIDULA, Reeve. Pl. 52, figs. 92, 93.

Shell fusiform, thick, shining, with sharp-pointed spire; whorls encircled by narrow, rather distant grooves, and sometimes the body-whorl is slightly plicated on the back, just below the suture; white, longitudinally streaked, marbled or reticulated with chestnut, sometimes forming a white band on the periphery; edge of columellar lip defined; outer lip sinuated behind, thickened and plicate within; interior of aperture, tip and base of the shell usually pale violet-tinted. Length, 15 mill.

Cape St. Lucas, Lower California.

C. HIRUNDO, Gaskoin. Pl. 52, fig. 94.

Shell solid, smooth, shining; whitish, freckled with waved orange-brown lines; outer lip tuberculated and sinuous behind.

Length, 16 mill. *Habitat unknown.*

In the general form and aperture this species looks something like a Strombina.

C. SUBULATA, Duclos. Pl. 52, fig. 96.

Shell with a long, sharp-pointed spire of eleven flattened whorls, the body-whorl striate and produced below into a long narrow canal; aperture long and narrow; outer lip thickened and dentate within; yellowish white. Length, 28 mill.

Habitat unknown.

The above description is made up from the original figures, one of which I copy. The shell may be a fossil. Sowerby subsequently described a very different species under the same specific name.

C. PLURISULCATA, Reeve. Pl. 52, fig. 95.

Yellowish brown, spirally grooved throughout, aperture sinuated posteriorly, lip unarmed. Length, 12 mill.

Habitat unknown.

Described from a single, worn and perhaps not adult specimen: it must be considered a doubtful species.

C. ARATA, Reeve. Pl. 53, fig. 97.

Shell spirally grooved throughout; yellowish, variegated with red-brown spots; columella excavated; lip simple, slightly expanded. Length, 14 mill.

Habitat unknown.

C. OCELLATA, Reeve. Pl. 53, fig. 98.

Shell finely longitudinally plicate, with revolving grooves at the base; whitish, stained and ocellated with orange-brown. Length, 8 mill.

Habitat unknown.

The eye-like points are said to dip at rather distant intervals from the sutures. A doubtful species.

C. PELAGIA, Reeve. Pl. 53, fig. 99.

Shell subulate, the whorls somewhat tubercularly ribbed above, forming a turreted spire; aperture small, lips strongly varicose, notched at the upper part, plicate within: white, marbled with chestnut, showing a more or less defined white central band, and white on the sutural tubercles. Length, 8 mill.

Habitat unknown.

C. MONILIFERA, Sowb. Pl. 53, fig. 100.

Shell oblong-acuminated, with well-marked sutures and somewhat rounded whorls; longitudinally ribbed, crossed and decussated or tuberculated by revolving riblets; white, chestnut-spotted on the ribs, leaving a central white band; aperture rather narrow, denticulated within. Length, 5 mill.

West Indies.

Reeve's figure of this species is very inaccurate.

C. MANGELIOIDES, Reeve. Pl. 53, fig. 1.

Shell fusiform, rather solid, longitudinally strongly ribbed; yellowish, sprinkled with orange-brown spots; whorls numerous, flatly convex, sutures impressed, the last whorl produced into a canal; aperture small, lip varicose, denticulated within.

Length, 8 mill.

West Indies.

I reproduce Reeve's description and figure: the species has not been recognized by collectors. I am strongly inclined to consider it a worn specimen or a variety of *C. monilifera*, in which the revolving riblets have disappeared or failed to be developed.

C. FULGIDA, Reeve. Pl. 53, fig. 2.

Shell rather elongated, transparent white, shining, subangulated on the periphery; painted longitudinally with faint waved orange-brown streaks; lips slightly denticulated within.

Length, 7–8 mill.

Port Lincoln, Australia (Cuming Coll.).
Noumea, New Caledonia (Brazier).

C. LACTEA, Duclos. Pl. 53, figs. 3, 4.

Shell smooth, white, striate below; aperture dentate within.

Length, 19 mill.

Indian Ocean, Seychelles Islands.

Duclos published a figure with name, but no description: his specimen was possibly denuded of its coloring. The localities are supplied from Kiener's monograph, although the shell figured by Kiener is so different (fig. 4) that it may well be another species.

C. ESSINGTONENSIS, Reeve. Pl. 53, figs. 5, 6.

Shell smooth, polished, with revolving grooves below; white,

with two narrow chestnut bands, sometimes livid purple without bands; exterior margin of aperture varicose, thickened and smooth within. Length, 13 mill.

N. Australia.

C. EXIMIA, Reeve. Pl. 53, figs. 7, 8.

Shell smooth, shining, transparent orange, finely reticulated with brown, encircled by two bands of opaque, snow-white flakes; whorls rather flat, the last contracted and grooved at the base, slightly recurved; aperture small, lip varicose, slightly notched at the upper part. Length, 10 mill.

Port Jackson, Australia.

C. bicincta, Angas (fig. 8), is a synonym.

C. EXILIS, Phil.

Shell small, narrowly fusiform; whorls six or seven, flattened, obsoletely longitudinally plicate; fulvous, with two white bands, one of which appears on the spire; lip slightly inflected and thickened in the middle. Length, 4 mill.

Red Sea near Aden.

Not figured. Unknown to me.

C. PUMILA, Dunker.

Shell small, elongated, attenuated at both extremities, unicolored, fuscous; whorls six, longitudinally costate, the costæ covering half the last whorl, which is lirate at the base; columella sinuous; lip slightly thickened, plicate or subdentate within. Length, 4 mill.

Japan.

Unfigured. Said to resemble *C. exilis*, Phil.

C. SERTULARIARUM, d'Orb. Pl. 53, figs. 9, 10.

Shell elongated, smooth, striate at base, sometimes slightly longitudinally folded on the body-whorl; yellowish-white, faintly banded with brown, with sutural markings of brown and white, alternately; lip thickened, not dentate. Length, 12 mill.

San Blas, Patagonia.

C. ELATA, Reeve. Pl. 53, fig. 11.

Shell solid, spire produced, whorls rather narrow, longitudinally plicately ribbed; white, longitudinally strigated and waved with chestnut; aperture small, columella thinly lipped.

Length, 19 mill. *Habitat unknown.*

Described from a shell in the Cumingian collection.

C. Cumingii, Reeve. Pl. 53, figs. 12–16.

Shell elongated, subcylindrical, recurved at the base, upper whorls minutely ribbed, all the others covered with close, fine spiral striæ; outer lip sinuated above, thickened and dentate within; purplish, with usually two bands of chestnut dots.

Length, 19 mill.

Island of Capul, Philippines; Mauritius.

With this species I unite *C. lumbricus*, Reeve (fig. 13), from the same locality; it is described as smooth, but the revolving striæ are represented on the original figure—which I have copied; the shell is rosy brown, with an obscure reticulated pattern. *C. spicula* (fig. 14) and *C. clausilia*, Duclos (fig. 15), are also synonyms.

Var. acus, Reeve. Pl. 53, fig. 16.

Shell longitudinally minutely ribbed towards the apex; yellowish, irregularly longitudinally streaked with orange-brown; lip simple, scarcely denticulated within. Length, 11 mill.

This shell is from the same locality as the preceding, and is, as Reeve says, of the same general type.

C. filosa, Angas. Pl. 53, fig. 17.

Shell elongately fusiform, varying from white to chocolate, the lighter-colored specimens often with brown maculations at the suture, the darker-colored ones frequently with whitish sutural maculations; whorls eight, slightly convex, covered by fine revolving striæ; outer lip slightly thickened externally and dentated within. Length, 11 mill.

New South Wales.

Described as a species of Æsopus, Gould; but the only character which it seems to possess in common with that genus is the unimportant one of revolving striæ.

C. attenuata, Angas. Pl. 53, fig. 18.

Shell smooth, shining, moderately solid; whorls eight, very slightly convex, the last striate at the base; outer lip simple, arcuate behind, contracted at the base, with an external brown varix; brown, paler beneath the sutures. Length, 9 mill.

Port Jackson, Australia.

C. nycteis, Duclos. Pl. 53, figs. 19–21.

Whorls flattened, white with angular notches of chestnut, or

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uniform white; lip with exterior varix and interior denticulations. Length, 7 mill.

Habitat unknown.

Figured but not described by Duclos, and not recognized by subsequent students. *C. Belizana*, Duclos (fig. 21), appears to be identical.

C. SPIRATELLA, von Martens. Pl. 54, fig. 22.

Shell small, oblong turreted, distinctly spirally lirate, yellowish with nodiform short ribs on the periphery, which are white; lip subsimple, canal open, shortly recurved. Length, 4·5 mill.

Mauritius.

C. RUBRA, von Martens. (Unfigured.) *E. Coast of Patagonia.*

Described from an imperfect specimen and referred doubtfully to Columbella.

Section VI. **Anachis**, H. and A. Adams.

Shell oval-fusiform, longitudinally strongly ribbed, spire elevated; last whorl not narrowed in front; aperture narrow; columella straight; outer lip nearly straight, with a posterior sinus, crenulated within.

C. RUGOSA, Sowb. Pl. 54, figs. 23–27.

Shell ovate, tuberculate, plicate or rudely ribbed, the ribs only developed on the upper half of the body-whorl, whole surface with coarse revolving striæ; white, stone-color or light olivaceous, with large chocolate clouds, especially on the back of the body-whorl—which is sometimes nearly covered with this color.

Length, 18–22 mill.

Panama.

The ordinary appearance of adults of this species is that shown by fig. 23; sometimes the shell is narrower and less rugose, being ribbed rather than tuberculate (fig. 24).

The synonyms are *C. bicolor*, Kiener (fig. 25), and, I think, *C sinuata*, Sowerby (figs. 26, 27). The latter has the characters of *C. rugosa*, except that the outer lip has a projecting sinus in the middle; it is a remarkable-looking shell and Sowerby thinks it "almost generically distinct," yet places it in Anachis. Judging from the figure, I place it here as a monstrosity of this species.

C. YOLDINA, Duclos. Pl. 54, fig. 48.

Shell with large rounded ribs, forming an obtuse shoulder to the whorls; lower part of body-whorl with revolving grooves and chocolate-color, rest of surface whitish, with a violet band, visible on the spire. Length, 12 mill.

Habitat unknown.

Figured but not described, and not since identified; it is possibly an extreme variety of the last species.

C. COSTELLATA, Sowb. Pl. 54, figs. 28–31.

Shell narrowly longitudinally ribbed, sometimes slightly tuberculate on the shoulder of the body-whorl; yellowish brown closely reticulated with chestnut or chocolate, forming an irregular darker band above the periphery, and a broader one below it; aperture bluish, and sometimes reticulated within; outer lip slightly dentate, sinuous behind. Length, 16–20 mill.

Mazatlan; Panama; Guatemala (?); Payta, Peru.

Nearly intermediate in its characters between *C. rugosa*, Sowb., and *C. fluctuata*, Sowb. *C. valida*, Reeve (fig. 29), from Guatemala, is described from a worn specimen of this species. *C. varicosa*, Gaskoin (fig. 30), is also a synonym; its locality, Payta, Peru, is probably erroneous. I add also *C. macrostoma* (Anton) Reeve (fig. 31), erroneously said to inhabit the coast of California.

C. FLUCTUATA, Sowb. Pl. 54, figs. 32–35.

Shell wide ovate, with somewhat turreted spire, nodulously ribbed, ribs sharp, curved on the body-whorl, or sometimes obsolete below the shoulder; white, with close, zigzag chocolate markings; epidermis yellowish, translucent, thin; outer lip broadly sinuous behind, callously thickened, and minutely dentate within. Length, 16–21 mill.

Panama.

The synonyms are *C. fluctuosa*, Duclos (fig. 33), *C. suturalis*, Gray (fig. 34), *C. costata*, Duclos (fig. 35).

C. CORONATA, Sowb. Pl. 54, figs. 36, 37.

Shell yellowish white, sometimes stained with chestnut, with zigzag longitudinal dark chestnut or chocolate lines; upper part of whorls coronated, the tubercles sometimes giving rise to short, distant longitudinal plications. Length, ·5–·75 inch.

Panama to *Cape St. Lucas.*

C. VARIA, Sowb. Pl. 54, figs. 38–41.

Longitudinally narrowly ribbed, decussated by revolving lines which are often more or less obsolete except towards the base of the body-whorl; marbled with chestnut or chocolate and white, sometimes almost covered with the darker color, but always having a more or less defined central white band, which sometimes reappears at the sutures of the spire-whorls; outer lip of aperture ribbed within. Length, 1 inch.

Panama. Mazatlan.

This appears to be the shell which Carpenter described as *Anachis* (? *costellata*, var.) *pachydermata*. *C. scalarina*, Sowb. (fig. 39) is a state of this species in which the whorls are unusually shouldered. *C. veleda*, Duclos (fig. 40), and *C. ophonia*, Duclos (fig. 41), are both synonymous with *C. varia*, the latter with the shouldered variety.

C. CRUENTATA, Mörch.

An unfigured species, said to generally resemble *C. daliola*, Duclos (= *C. varia*, Sowb.), but with longer spire, and smaller, broader aperture. The characteristic coloring consists of blood-red spots, usually upon alternate ribs, some in the interspaces of the ribs; some specimens have only a single red spot, others are entirely white. Length, 6 mill.

Sonsonate, West Coast of Central America.

C. LYRATA, Sowb. Pl. 54, fig. 42.

Shell sharply longitudinally ribbed, decussated by revolving striæ, which are frequently obsolete except at the lower part of the body-whorl; yellowish, articulated by two bands of chestnut spots appearing on the ribs; aperture white; lip sinuated behind, plicate within. Length, 18–22 mill.

Panama.

C. FULVA, Sowb. Pl. 54, fig. 43.

Shell reddish brown, with distant narrow longitudinal plications, fading out at the lower part of the body-whorl, where they are replaced by revolving striæ. Length, 23 mill.

Panama, under stones.

C. TERPSICHORE, Sowb. Pl. 54, figs. 44–46.

Whorls longitudinally ribbed and nodosely shouldered; ribs rather distant and narrow; white, with revolving bands of

chestnut spots and zigzag markings, more or less interrupted by the smooth interstices of the ribs; aperture white within, the outer lip sinuous behind, and plicate within.

Length, 15–18 mill.

West Indies.

C. lineolata, Kiener (fig. 45), is a synonym, and I suppose that *C. Californica*, Reeve (fig. 46), a species which does not inhabit "California," may also be placed here, if the figure may be depended on.

C. ADELINÆ, Tryon. Pl. 54, fig. 47.

Shell closely longitudinally ribbed, with revolving striæ, apparent principally in the interstices of the ribs; ivory-white, shining, with two broad bands of chocolate spots, arranged in checker-board fashion, and leaving a central band of white; lip with external varix, sinuated behind and dentate within; aperture white. Length (decollated), 15 mill.

Habitat unknown.

Six fine specimens are before me, all of them decollated. The nearest ally is *C. Terpsichore*, but this shell differs in its more numerous, less tuberculated ribs, in the disposition of the color-spots and their form.

C. SUFFUSA, Sowb. Pl. 55, fig. 49.

Shell distantly longitudinally ribbed, with shouldered whorls, the ribs sometimes obsolete on the body-whorl, which is striate at the base; white, with longitudinal streaks and spots of chestnut, often forming interrupted revolving bands.

Length, 10 mill.

Galapagos (Wimmer); *Central America* (Mörch).

C. NIGRICOSTATA, E. A. Smith. Pl. 55, fig. 50.

Shell subturreted, longitudinally ribbed; epidermis thin, yellowish; shell white, the ribs black, bearing a series of white spots a little above the middle of the body-whorl, interstices of the ribs with dark, somewhat zigzag lines, revolving lines at the base spotted with black; aperture white within; labrum dentate.

Length, 12·5 mill.

Andaman Islands.

Appears to be very closely allied to *C. suffusa*, Sowb.

C. TUBERCULATA, Reeve. Pl. 55, fig. 51.

Obliquely ribbed, the ribs tuberculated below the sutures; white, with a superior red band; aperture small, lip sinuated behind, thickened and denticulated within. Length, 13 mill.

Hab. unknown (Cumingian Coll.).

C. RUGULOSA, Sowb. Pl. 55, figs. 52, 53.

Shell oblong-ovate, thick, longitudinally plicately wrinkled, and covered with close revolving striæ; yellowish, almost covered with chocolate or chestnut irregular markings, made up of very close minute dots, forming a light band below the middle of the body-whorl; aperture chocolate. Length, 13 mill.

W. Coast of Central America, Galapagos Is.

C. CAVEA, Reeve. Pl. 55, fig. 54.

Shell swollen and subangulated on the periphery, tubercularly ribbed; light chestnut or yellowish, the ribs dark colored, aperture toothed within. Length, 8·5 mill.

Habitat unknown.

May be a small specimen of *C. varia*, Sowb.

C. NIGROPUNCTATA, Sowb.

Shell ovately acuminate; whorls six, tuberculate below the sutures; longitudinally costate in the middle, the costæ decussated; white punctate with black. L. 11, diam. 6 mill.

Lord Hood's Islands (on Meleagrina).

This species was not included by Sowerby in his subsequently published monograph in the "Thesaurus," and is not mentioned by other monographers; I do not know it.

C. MULTIVOLUTA, Reeve. Pl. 55, fig. 55.

Shell acuminately ovate, longitudinally obscurely white ribbed, variegated with two bands of black lines; spire attenuated; whorls numerous; aperture rather small, columella contracted, grooved, lip simple. Length, 15 mill.

Habitat unknown.

C. ADAMSI, Tryon. Pl. 55, fig. 56.

Shell ovate, latticed throughout with longitudinal and revolving ribs; yellowish, faintly red-banded at the upper and lower parts of the body-whorl, with a single band on the whorls of the

spire; whorls rounded, the ribs slightly tuberculated above; aperture rather small, lip thickened, dentate within.

Length, 11 mill.

Habitat unknown.

I am not acquainted with this species; it was figured and described by Reeve under the name of *C. fenestrata*, but that name being preoccupied by C. B. Adams, I change it as above.

C. STRENELLA, Duclos. Pl. 55, figs. 57, 58.

Spire whorls somewhat flattened, shell longitudinally ribbed, crossed by revolving striæ; yellowish with chestnut markings or nearly uniform chestnut-brown; columella with tubercles below, outer lip toothed within. Length, 12 mill.

Habitat unknown.

C. PORCATA, Reeve. Pl. 55, fig. 59.

Shell ovate, spirally ridged throughout, the interstices being conspicuously excavated; white, much stained and spotted with purple-red; whorls convex, sutures excavated; aperture small, denticulated within. Length, 10 mill.

Habitat unknown (Cumingian Coll.).

I have not seen this species.

C. JASPIDEA, Sowb. Pl. 55, fig. 60.

Shell with longitudinal, rounded plications, usually becoming obsolete towards the middle of the body-whorl, the lower part of which is covered by revolving grooves; there are sometimes faint revolving grooves in the interstices of the plications; yellowish brown, tinged, especially on the spire, with pink; outer lip sinuous behind, more or less dentate and thickened on the inner margin. Length, 12 mill.

Island of Ticao, Philippines, under stones at low water (Cuming).

Viti Islands (Godeffroy).

C. FILAMENTOSA, Dunker. Pl. 55, fig. 62.

Slightly but closely longitudinally ribbed, with revolving striæ at the base; outer lip varicosely thickened, smooth within, sinuate behind, terminating in a short but distinctly constricted canal; yellowish brown, with numerous equidistant narrow revolving chestnut lines. Length, 12 mill.

So. Pacific Ocean.

C. PULCHELLA, Kiener. Pl. 55, fig. 63.

Shell closely ribbed, crossed by close impressed lines, cutting

the ribs into tubercles; yellowish white, reticulated with light chestnut; outer lip scarcely thickened, smooth within.

Length, 10 mill. *Havana, Cuba* (Arango).

Sowerby's and Reeve's figures of this species do not represent it, but the next species. The shell is allied to *C. jaspidea* in form, but is somewhat more slim. Kiener gives (erroneously) the Mediterranean Sea as locality for this species. *C. plicatulum*, Dunker, from Venezuela, described thirty years ago and remaining unfigured and unrecognized, may possibly be this species. Many years subsequently, Dunker again used the same specific name for another form.

C. ELEGANTULA, Mörch. Pl. 55, figs. 64, 65.

Shell pale, shining, flamed and spotted with fulvous orange; upper whorls longitudinally ribbed, the interstices sometimes latticed; lip sinuous behind, denticulated within.

Length, 9–12 mill.

W. Coast Central America, Galapagos Is.

Figured by Sowerby and Reeve for *C. pulchella*, Kiener—a different shell.

C. VALGA, Gould. Pl. 55, fig. 61.

Small, solid, ovate-lanceolate, somewhat gibbous; whorls nine to ten, slightly convex, the penultimate one disproportionally large so as to give the shell a gibbous or distorted form; with fine longitudinal riblets, becoming obsolete on the upper part of the body-whorl; rostrum somewhat elongated; suture linear, deeply impressed; aperture narrow, ribbed within. Pale fawn-color, encircled by chestnut lines. L. 12, diam. 5 mill.

Samoa Islands.

The above description indicates a shell very like *C. jaspidea*, Sowb., but the figure (which I copy) does not correspond with it. I am almost convinced, however, that it = *jaspidea*.

C. ACUTA, Stearns. Pl. 55, fig. 66.

Shell small, slender, acutely fusiform; whorls eight, with about fifteen nearly equidistant rounded longitudinal ribs, which are absent on the apex and adjoining whorl and become obsolete just below the angulated periphery of the body-whorl—which has distinct basal revolving striæ; sometimes the ribs are subnodulous; white with revolving sienna lines and blotches, or

light sienna-yellow, with whitish blotches and brown linear markings; aperture white; the outer lip simple, moderately thickened, slightly shouldered and curved above, five to seven dentate within. L. ·26, diam. ·08 in.

Egmont Key, W. Coast of Florida.

C. AVARA, Say. Pl. 55, figs. 67–71.

Shell somewhat variable in outline, the spire longer or shorter and the body-whorl correspondingly narrower or broader, with numerous longitudinal plications, usually extending to about the middle of the body-whorl, and revolving striæ, conspicuous towards its base, and elsewhere apparent in the interstices of the plications; yellowish white, more or less blotched or reticulated irregularly with chestnut or chocolate, sometimes uniform yellowish white. Length, 13–20 mill.

Atlantic Coast of the United States; Tampa Bay, Gulf Coast of Florida.

C. Lafresnayi, Fischer and Bernardi (fig. 68), from the Island of Marie Galante, West Indies, and *C. similis*, Ravenel (fig. 69), are synonyms; the latter being founded on the long, narrow forms. Between these and a stumpy specimen of *C. avara*, there is much difference, but my extensive suites, from every portion of our coast exhibit every intermediate form, and show a variability as to sculpture and coloring suggestive of a future great reduction in the number of admitted species in the genus. *C. semiplicata*, Stearns (figs. 70, 71), from the West Coast of Florida, is another long, narrow form, with fewer longitudinal ribs, yellowish, reticulated with light chestnut. At first sight it appears very distinct from the typical *avara*, but is too close to Ravenel's *C. similis*. I have W. Florida specimens before me which supply the intermediate forms. Another probable synonym is *C. translirata*, Ravenel (unfigured), which is elevated conic, with close ribs and five equidistant revolving striæ on the upper half of the body-whorl, and on those of the spire, nodulous at the suture and the nodules white. Length, nearly 1 inch.

C. PHYLINA, Duclos. Pl. 55, figs. 72, 73.

Shell smooth, or flexuously ribbed on the body-whorl only; yellowish, closely reticulated with narrow chestnut lines.

Length, 9 mill.

Habitat unknown.

Figured but not described by Chenu. Appears to be very closely related to *C. avara*, Say.

C. CLETA, Chenu. Pl. 55, fig. 74.

Shell distantly ribbed, the first whorls of the spire more closely and finely ribbed; yellowish brown, with numerous narrow chestnut revolving lines. Length, 13 mill.

Habitat unknown.

This appears (like the last) to be nearly related to *C. avara*.

C. MENALETTA, Duclos. Pl. 55, fig. 75.

Shell distantly but strongly folded; ash-color with distant narrow chestnut revolving lines. Length, 6 mill.

Habitat unknown.

C. PLICARIA, Montrouzier. Pl. 56, fig. 76.

Whorls moderately rounded, closely longitudinally ribbed, with revolving striæ at the base; yellowish, reticulated with reddish brown; outer lip dentate within, columella plicate. Length, 13 mill.

New Caledonia.

Described from a unique specimen.

C. COSTULATA, Cantraine. Pl. 56, fig. 77.

Shell white, sometimes with a yellowish or rosy tinge; with narrow distant longitudinal ribs, and well-impressed sutures; ribs becoming evanescent towards the base of the body-whorl; whole surface covered with very close, minute revolving striæ; lip scarcely thickened, slightly dentate within. Length, 10 mill.

Boreal. Norway, England, Nova Scotia, Rhode Island, Chesapeake Bay, Sicily. Fossil in the later European tertiary, Vienna, Messina, etc.

Has the usual characteristics of northern shells.

C. ROSACEA, Gould. Pl. 56, figs. 78, 79.

Shell small, acutely conic, white, tinged with rose-color; whorls six, covered with minute spiral lines; those of the spire finely or obsoletely ribbed, sometimes smooth, body-whorl without ribs, outer lip sharp, without teeth within. Length, 7·5 mill.

Norway, Spitzbergen, Greenland, New England.

American specimens are scarcely at all costate.

C. DIAPHANA, Verrill. Pl. 56, fig. 82.

Shell thin, delicate, translucent, white, nearly smooth, elongated, with long tapering acute spire. Whorls eight, broadly

and evenly rounded; suture somewhat impressed, but not deep, frequently narrowly channeled; surface, except anteriorly and on the canal, destitute of spiral lines, and of any indication of ribs, but covered with very close, almost microscopic lines of growth, which give the surface a dull appearance when dry; on the canal and extending to the anterior part of the body-whorl are a number of distinct spiral lines becoming faint opposite the middle of the aperture; fine, microscopic spiral striations sometimes appear on the lower whorls. The nucleus is larger than in *A. rosacea*, rounded, depressed and spiral, but somewhat mammillary. The aperture is small, oblong-ovate; the outer lip is sharp at the edge, but in adult shells has a distinct thickening a little back from its margin; the inner surface is usually smooth, but in some adult specimens there are four or five small, transversely oblong tubercles, back from the margin, and a larger conical tubercle at the base of the canal. Columella sigmoid, a little excavated in the middle, and with a distinct, raised, spiral fold at its inner edge, anteriorly; canal short, open, very slightly curved; epidermis thin, closely adherent, minutely lamellose along the lines of growth, pale greenish gray, or yellowish white.

Length of one of the largest specimens, 12 mm., breadth 4 mm., length of aperture, 5 mm., its breadth 1·8 mm. Stouter and shorter examples occur.

Off Martha's Vineyard, in 65 to 487 fathoms, 1880 and 1881 (U. S. Fish Commission). *Off Chesapeake Bay*, 300 fathoms (Capt. Tanner). Taken at many stations.

This species resembles *C. rosacea*, of which I formerly supposed it to be a deep-water variety. A more careful examination of a larger and better series convinces me that they are distinct. The present species is a more slender and elongated, and far more delicate shell, and is destitute of the impressed spiral lines that cover the whorls, both in that species and *C. Holböllii*, and is without any traces of transverse ribs, on the upper whorls. The fold on the columella edge and the submarginal thickening of the outer lip are also good distinctive marks, but the great difference in the nucleus is, perhaps, of still greater importance. Fresh specimens, when wet, are so transparent that the internal form of the columella can often be seen through the shell.

The above is Prof. Verrill's description in full.

C. PURA, Verrill.

This shell is very abundant in many of our deeper dredgings, on muddy bottoms. It resembles the shallow water species, *C. zonalis* (= *C. dissimilis*, Stimp.), in form, except that it is somewhat shorter and stouter, with the whorls more convex, the columella more excavated, the aperture a little wider and the canal slightly bent back at the tip, but the shell is translucent and glossy, and the color is pure white or pinkish white, except near the apex, where it is tinged with pale brown or pink, in fresh specimens. The surface is smooth, except slight lines of growth and a few faint spiral lines, on the canal anteriorly. The nucleus is distinctly larger than in the typical *C. zonalis*. It is probable that this form is a distinct species.

Off Martha's Vineyard, 100 to 487 fms., 1880, 1881 (U. S. Fish Comm.); *off Chesapeake Bay*, 300 fathoms (Capt. Tanner). Abundant.

The above is a copy of Prof. Verrill's description.

C. VERRILLI, Dall.

Shell slender, conical, yellowish white, whorls seven; polished, but covered when fresh by a shaggy brown epidermis, which is irregularly lamellated; nucleus naticoid, shining translucent white; ten or twelve close spiral lines on the pillar and basal surface, with occasionally microscopical spiral lines on other parts of the shell; longitudinal sculpture consisting in some specimens of nine to fourteen plications, stronger at the posterior end on each whorl, forming there slight tubercles which form a waved sutural line—in others the sculpture is fainter, not tuberculate at the suture, and becoming evanescent on the larger whorls at a short distance in advance of it; pillar stout, a little twisted, and with the canal distinctly recurved, with a smooth white callus; outer lip slightly thickened and reflected, somewhat contracted anteriorly to form the short wide canal, and having internally about midway between its junction with the body-whorl and the canal a single small rounded pustule-shaped callus; there are no other denticles except this, which is invariably present in adult specimens.

L. 9, of last whorl 5, of aperture 3·5 mill.; max. lat. 3, of aperture 1·5 mill.

Caribbean, 331 to 805 fathoms.

The above is one of the numerous new species discovered in

1877–79 by the dredgings of the U. S. Coast Survey Steamer Blake, and described by Mr. W. H. Dall. He says: "This species is most nearly allied to *Astyris rosacea*, Gould, from which the faintly sculptured specimens differ by the smaller mouth in proportion to the spire, and the characters of the epidermis and aperture; the character of the plications also differs from that of *A. rosacea*. The solitary pustular denticle is a very peculiar, and, as far as I am aware, unique feature." Unfigured. *C. strix*, Watson, and its var. *subacta*, are evidently synonyms: the species has not been figured, but the description is sufficient to indicate this.

C. STRICTA, Watson.

Shell short and dumpy, with a rather high, scalar, blunt spire, a short but broadish last whorl, and a small, slightly reverted snout; there are on the last whorl twelve longitudinal ribs, separated by furrows three times their width, these ribs increase in number rapidly up the spire; there is a slight tubercular ridge at the top of the whorls, and obsolete spiral striæ below, becoming more distinct towards the base of the body-whorl; color porcellanous white; apex blunt, smooth; whorls six, scarcely convex; mouth small, lip contracted and slightly curved above, with ten small teeth within, of which the highest is remote from the top and larger than the others; just at this point is a slight open false sinus. L. ·25, diam. ·13; mouth long ·11, broad ·06 in.

Near St. Thomas, W. I., 390 fms., in coral mud. (Challenger Exped.)

If this should prove to be an older state of the next species, it will become a synonym thereto.

C. AMPHISSELLA, Dall.

Shell small, stout, blunt tipped, yellowish white, of four and a half whorls; nucleus large, white, shining, smooth, of one and a half whorls; sculpture of numerous (on the last whorl twenty-one) straight, subequal plications with about equal interspaces, beginning at the suture, passing clear over the whorl, and fading out only when near the canal; also faint lines of growth; spiral sculpture of numerous equal fine rounded threads (twenty-one on the last whorl) with slightly wider interspaces, covering the whole shell except the nucleus; pillar short, stout, a little con-

cave, with a slight callus; outer lip somewhat thickened, smooth; canal wide, short but distinct; sutures distinct. L. 4, lat. 2 mill.

Yucatan Strait, 640 fms.

I am not acquainted with this unfigured and apparently immature species.

C. TEOPHANIA, Duclos. Pl. 56, fig. 80.

Shell distantly and rather broadly longitudinally ribbed, with revolving striæ in the interstices, and at the base of the body-whorl; chestnut, variegated with a darker tint. Length, 10 mill.

Habitat unknown.

This figured but undescribed species has not been recognized.

C. BUCHHOLZI, von Martens. Pl. 56, fig. 81.

Shell turreted, shining, longitudinally folded, cut into nodules by an impressed line under the suture; folds evanescent on the body-whorl, which has revolving striæ towards the base; outer lip thickened and plicate within; grayish white with three light chestnut bands. Length, 11 mill.

Guinea, West Africa.

C. SAGRA, d'Orb. Pl. 56, figs. 83, 84.

Shell oval-oblong, shining, very slightly longitudinally plicated except the last whorl of the spire, which is smooth, with revolving grooves at the base of the body-whorl, spire elongated conic, with sharp apex, composed of seven somewhat convex whorls; mouth sinuous; lip thickened, dentate within; columella with two slightly marked plications; white, tinged with rose-color on the spire. Length, 8 mill.

West Indies.

The figure represents a smooth shell, but the description is as above. I have not seen the species. *C. Kieneria*, Ducl. (fig. 84), appears to resemble it very closely, and may be identical; it has not been described.

C. ELECTONA, Duclos. Pl. 56, fig. 85.

Body-whorl smooth, spire closely and finely longitudinally ribbed; white, spire tinged with rose-color; lip sparsely dentate. Length, 12 mill.

Habitat unknown.

C. ENCAUSTICA, Reeve. Pl. 56, fig. 86.

Shell oblong, subulate, rather solid, fulvous brown, tessellately

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blotched with white, spire sharp, sutures impressed, whorls nine, longitudinally ribbed, decussated with spiral grooves; aperture rather small, denticulately ridged within.

Gulf of California (Lieut. Shipley).

This species has not been recognized by Carpenter nor by subsequent naturalists. The locality must be considered doubtful, and the figure is possibly a magnified one.

C. SAINT-PAIRIANA, Caillet. Pl. 56, fig. 87.

Shell elongated, acuminated, solid, reddish rose-color, under a light olivaceous epidermis; embryonal whorls smooth, several subsequent ones of the spire closely and finely costulate, body-whorl without ribs, but with revolving striæ below; aperture narrow, the lip with external varix and denticulated within; operculum thin, pellucid, corneous, obliquely striated.

Length, 23 mill.

Isl. of Marie Galante, West Indies.

C. CUSPIDATA, Marrat.

Shell elongated fusiform, attenuated below, spire sharp-pointed; whorls longitudinally costate and transversely sulcate, ribs subgranulated; pallid gray, or fulvous, maculated with chestnut, epidermis dusky; columella arcuate, labium callous; aperture narrow, lip lirate within.

West Africa.

Unfigured. No dimensions given. The description will suit several species already well known.

Section VII. **Semʻnella**, Pease.

Shell very small, fusiform, longitudinally costate, usually decussated; lip slightly emarginate above, lirate or denticulate within.

Differs from Anachis principally in its minute size.

C. LACHRYMA, Gask. Pl. 56, fig. 48.

Shell shortly fusiform, attenuated at each extremity; snow-white, faintly stained with orange-brown; surface entirely cancellated, spire conical, densely grained; aperture elongated narrow, lip notched above. Length, 8 mill.

Sandwich Islands; Upolu.

C. TROGLODYTES, Souverb. Pl. 56, fig. 89.

Shell longitudinally ribbed, with equal interstices, and

revolving striæ at the base of the body-whorl, subtranslucent, shining, with a lighter band at the sutures and an interrupted brown line below it, another light band below the periphery, and the basal portion of the body-whorl checkered with brown spots; aperture narrow, the lip minutely denticulated within.

Length, 3·75 mill.

New Caledonia; Papua (Tapparone-Canefri).

C. Peasei, von Martens.

Shell fusiform, minute, attenuated at both ends, longitudinally ribbed; color variable, light brown with transverse lines of a darker color encircling the whorls, or with longitudinal undulating lines, or ornamented with oblong square brown spots, or light brown dotted with white. Length, 3·5 mill.

Sandwich Islands.

C. crassilabris, Reeve. Pl. 56, fig. 90.

Shell ovate, finely cancellated; yellowish, encircled with two bands of red-brown arrow-headed marks, purple-spotted at the base; spire rather short, sharp; aperture small, lip very thick, varicose.

Habitat unknown.

I am not acquainted with this species. The figure is probably much enlarged, although it bears no size-mark.

C. pygmæa, Sowb. Pl. 56, figs. 91, 92.

Whorls obliquely ribbed above; white, with three revolving rows of chestnut spots, sometimes coalescing into blotches.

Length, 6 mill.

West Columbia, Cape St. Lucas.

C. atomella, Duclos. Pl. 56, fig. 93.

Shell pure white, longitudinally ribbed; aperture peculiarly contracted by a plate-like thickening of the inner margin of the outer lip. Length, 8 mill.

Habitat unknown.

This shell has not been described. *C. ornata*, Pease (not Ravenel), has been distributed under this name, and Reeve has figured for it *C. atrata*, Gould.

C. Garretti, Tryon. Pl. 56, fig. 94.

Shell rather stoutly fusiform; spire slender, elongate; longitudinal ribs rounded, prominent, contiguous, sometimes becoming

obsolete on lower part of last whorl; outer lip denticulate within; ribs white, sometimes banded with white, blotched or spotted irregularly with iridescent reddish brown, last whorl ornamented with flexuous lines of reddish chestnut. Length, 3 mill.

Tahiti.

Varies much in the disposition of its colors, but the opaque-white ribs and flexuous lines on the last whorl are constant. Described by Mr. Pease as *Citharopsis ornata*, but as Citharopsis is a synonym of Columbella, and as the specific name *ornata* is preoccupied by Ravenel for a post-pliocene species, I make the change of name as above.

C. GRACILIS, Pease. Pl. 56, fig. 95.

Shell slender, elongately fusiform, shining; longitudinal ribs usually rather prominent, sometimes evanescent, interstices generally showing revolving striæ, lower part of body-whorl distinctly striate; sometimes the ribs are obsolete and the revolving striæ become prominent over the entire body-whorl; yellowish, sometimes variegated with chestnut, and frequently with chestnut spots arranged in a superior band.

Length, 4–6 mill. *Viti Isles.*

Pretty constant in form, but varying in sculpture and coloring. Pease described from a not perfectly adult specimen; Dunker described the adult under the name of *C. pusiola*. A portion of the original lot of the latter species is before me. Mr. Garrett believes *C. pusiola* to = *C. lachryma*, Gaskoin (p. 165).

C. TÆNIATA, Phil. Pl. 56, fig. 96.

Shell with rounded whorls, and well-impressed suture, spire subturreted; tubercularly ribbed beneath the sutures; yellowish white with revolving lines and blotches of chestnut; aperture small, lip notched above, denticulate within. Length, 6 mill.

Mazatlan; Cape St. Lucas.

C. Gaskoini, Carp., and *C. venusta*, Reeve (fig. 96), are synonyms.

C. KIROSTRA, Duclos. Pl. 56, fig. 97.

Shell pure white. Length, 9·5 mill.

Habitat unknown.

I can give no information concerning this shell, which is figured but not described; it may be colorless from bleaching.

C. ATRAMENTARIA, Sowb. Pl. 56, figs. 98, 99; Pl. 43, fig. 27; Pl. 57, fig. 1.

Shell ventricose, with sharp-pointed spire, thick, closely spirally grooved, longitudinally plicately ribbed, the ribs fading towards the lower part; very dark chocolate, obscurely white spotted; aperture chocolate; outer lip thickened at the margin and dentate within. Length, 8·5–10 mill.

Galapagos Islands; Gulf of Nicoya, Central America.

C. lentiginosa, Hinds (t. 43, fig. 27), is synonymous and *C. pariolida*, Duclos (fig. 1), is a specimen in which the longitudinal plicæ are not developed; a not unusual form.

C. NIGRICANS, Sowb. Pl. 57, fig. 2.

Shell cancellated by longitudinal ribs and revolving striæ, with usually a single row of minute granules at the sutures; aperture rather small, lip thickened and denticulated within, conspicuously notched behind; dusky brown or nearly black, sometimes obscurely lighter-banded on the middle of the body-whorl, and frequently the sutural tubercles form a narrow white band.

Length, 8 mill.

Panama, Galapagos.

C. PARVA, Sowb. Pl. 57, figs. 3–5.

Minutely longitudinally ribbed, the interstices with fine revolving striæ; yellowish brown, with a chestnut-colored superior band, and base. Length, 5–8 mill.

West Coast Central America.

The shell figured by Reeve (fig. 3) differs much from the type and is apparently not adult. *C. pamila*, Duclos (fig. 5) appears to be synonymous.

C. SPADICEA, Philippi. Pl. 57, fig. 6.

Cylindrically oblong, acuminated at the apex, longitudinally ribbed, and decussated by faint revolving striæ, slightly tuberculated at the sutures; dark chocolate, with a narrow white band on the periphery, and sutural granules also whitish.

Length, 9 mill.

Mazatlan.

A narrower shell than *C. nigricans*, with similar sculpture and colors.

C. OBESA, C. B. Ad. Pl. 57, figs. 7–9, 20.

Shell ovately ventricose, longitudinally ribbed, a little crimped at the sutures, with fine revolving striæ, sometimes obsolete except towards the base of the body-whorl; dusky or yellowish, chestnut-banded near the suture, and again on the middle or base of body-whorl. Length, 5–7 mill.

West Indies; Mouth of St. John's River, Florida.

C. cancellata, Gaskoin (fig. 8), is founded on a dead, faded specimen of this species. Reeve's description of *C obesa* is very bad, and his figure does not correspond with his description—nor does it represent the species. In *C. decipiens*, Ad. (fig. 9), the ribs are early evanescent on the body-whorl, and the aperture has a well-defined marginal varix; it cannot be separated, even as a variety.

C. OSTREICOLA, E. A. Smith. Pl. 57, fig. 19.

Minute, subfusiform, blackish brown, longitudinally ribbed, ribs slightly nodulous at the upper part; transversely grooved towards the base; spire acute, rather longer than the mouth; whorls six, sloping, scarcely convex; nucleus smooth; last whorl somewhat swollen, contracted towards the base; aperture oblong, dark brown within; lip with a moderate sinus above, denticulated within; canal very short; columella with a nodulous callosity above. L. 4, diam. 2 mill.

Florida (on *Ostrea virginica*).

Said to be allied to *C. nigricans*, but I think its closest relationships are with *C. obesa*, Ads. The figure represents a more stumpy form than that species, but the description, copied above, indicates no differential character.

C. ATRATA, Gould. Pl. 57, figs. 10–17.

Shell plicately ribbed, with revolving striæ at base; lip scarcely denticulated within; dark brown, nearly black, sometimes with two or three brown bands. Length, 5 mill.

Hong-Kong Harbor (Stimpson); *Pt. Jackson, Australia* (Brazier); *Aracan* (Hanley); *Viti Islands* (Garrett); *New Caledonia* (Souverbie).

Probably *C. melanida*, Ducl. (fig. 11), *C. levania*, Duclos (fig. 13), *C. atomella*, Reeve, not Duclos (fig. 10), and *C. pumila*, Souverb. (fig. 12), are synonyms. It is a common shell, of wide distribution. I am much inclined to include here *C. ida*, Duclos

(figs. 14–17). The figures have no size-mark attached, yet there can be little doubt that they are greatly magnified; they include shells more varied in color than anything we have been accustomed to refer to *C. atrata*, yet among them is one that is perfectly and others that are nearly typical in this respect.

C. NISITELLA, Duclos. Pl. 57, fig. 18.

Very like the *C. ida* which I have above referred to *C. atrata*, except in size, being 15 mill. long, according to the size-mark accompanying the figure.

Habitat unknown.

C. DIGGLESI, Brazier. Pl. 56, fig. 100.

Shell oblong-ovate, thin, glassy, whitish, marked with oblique reddish lines, longitudinally narrowly ribbed; whorls five and a half, tabled at the suture; apex acute, light blue; aperture ear-shaped, half the length of the shell; outer lip minutely denticulated within; columella curved, finely striated, with a callus extending to the upper part; canal short. Length, 3 mill.

N. E. Coast of Australia, 18 fathoms (Brazier).

C. GOWLLANDI, Brazier. Pl. 57, fig. 21.

Oblong-ovate, rather solid, horny yellow, longitudinally ribbed as far as the centre of the last whorl; ribs rounded and smooth, interstices smooth, below obliquely striated; whorls eight, moderately convex, encircled with a reddish band on the centre of the whorls, with two on the last, one in the middle and one below, grained at the suture; apex acute, very smooth; aperture ear-shaped, short, outer lip thickened, smooth; columella sinuous, coated with callus, upper part with a tooth-like callus spreading towards the outer lip; canal short, straight. Length, 4·5 mill.

N. E. Australia (under stones); *San Cristoval, Solomon's Is.*

C. LENTIGINOSA, Reeve. Pl. 57, figs. 22, 23.

Shell elongately ovate, moderately solid, purplish olive, with a band of white dots just below the suture, and another encircling the middle of the last whorl; whorls six, strongly and closely longitudinally ribbed, the ribs becoming evanescent towards the base of the lower whorl, which is transversely grooved; aperture narrowly subquadrate; canal short, everted and recurved.

Length, 3·5 mill.

Port Jackson, under stones at low-water (Angas);
Darnley Is., Torres Sts., Australia (Brazier).

I include in the synonymy *C. Smithi*, Angas (fig. 23), from which the above description is copied. Mr. Angas changed the name of *lentiginosa*, Reeve, preoccupied by Hinds, to *C. Darwini*, but as Hinds' species is a synonym of *C. atramentaria*, Sowb., Reeve's name can be used.

C. SPECIOSA, Angas. Pl. 57, fig. 24.

Shell minute, fusiform, thin, subtransparent; yellowish, ornamented with very fine undulating longitudinal chestnut lines, and encircled by two bands of irregular square or crescent-shaped opaque white spots, and frequently a narrow, subcentral chestnut band; whorls five, the last longitudinally plicate above, smooth below. Length, 3 mill.

Port Jackson, Australia.

Mangelia Atkinsoni, Tenison-Woods, is a synonym.

C. FULMINEA, Gould.

Spire and upper part of body-whorl with flexuous plications, lower part of body-whorl with revolving striæ; ovate-lanceolate, shining, whorls six, convex, ornamented with angulated lines of orange and chestnut; lip simple, slightly thickened behind, smooth within and purplish. Length, 7 mill.

St. Simon's Bay (Stimpson).

The folds are said to be unusually distinct and prominent. I am not acquainted with this species.

C. MINUSCULA, Gould.

Shell minute, thick, elongate, fuscous; whorls seven, slightly convex, with narrow ribs, obsoletely clathrate below; aperture about half the length of the shell, the lip arcuate, acute, granulated within. The variety is thinner, horn-colored, with two dark revolving threads. L. 4, diam. 1·5 mill.

Ousima (Stimpson).

Unknown to me. The types of this, the preceding and following species described by Gould are believed to have been destroyed by fire at Chicago.

C. NEBULOSA, Gould.

Shell small, elongately ovate, turreted, composed of eight slightly convex tabulated whorls, with a sutural line and about twenty undulations; variegated with yellow-brown; the last

whorl with revolving striæ; aperture one-third the length of the shell, lunate. L. 6 mill., diam. 2·5 mill.

China Sea (Stimpson).

C. MINUTA, Gould.

Shell minute, ovate, turreted, straw-color, with twelve acute longitudinal plications, and revolving striæ; aperture about one-third the length of the shell, the lip somewhat gibbous within. L. 2·5 diam. 1 mill.

China Sea (Stimpson).

C. DORSUOSA, Gould.

Shell small, elongate, ovately fusiform, shining, waxy with a subsutural chestnut band and another at the base; whorls eight, shouldered, somewhat convex, with seven ribs and thin transverse striæ; aperture lunate with acute lip.

L. 7 mill., diam. 3 mill.

Hong-Kong (Stimpson).

C. BALTEATA, Gould.

Shell minute, rhomboidal, elongated, shining, straw-colored, banded with chestnut; whorls seven, the three earlier ones simple, the rest lirate with a subsutural impressed line, and the interstices of the ribs with revolving striæ; aperture narrowly lunate, lip simple. L. 4 mill., diam. 2 mill.

China Sea.

C. ALTERNATA, Gould.

Shell minute, elongately ovate, shining; straw-color, with elongated chestnut spots arranged on alternate plications; whorls five, with twelve obtuse plications, and anterior revolving striæ; aperture short, narrow, lip thickened, crenate within.

L. 3, diam. 1·5 mill.

Hong-Kong.

C. NANA, Dunker.

Shell small, oblong or nearly biconical, with exserted acute spire; whorls five, longitudinally plicate, the last half the length of the shell; spire white, body-whorl mostly chestnut; aperture narrow, variegated within. Length, 4 mill.

Viti Islands.

Unfigured.

C. ZONATA, Gould.

Shell minute, fusiform, shining, waxy, with a subsutural chestnut band and a wider basal one; whorls six, contracted below,

with ten to twelve flexuous plications; aperture narrow, with acute, simple lip. L. 3, diam. 2 mill.

Kagosima (Stimpson).

Mr. E. A. Smith refers this to the genus Zafra, described as one of the Pleurotomidæ, but which he thinks belongs to Columbellidæ.

C. NEVILLI, Tryon. Pl. 57, fig. 25.

Shell long and narrow, with a few narrow longitudinal ribs separated by wide interspaces, and indistinct revolving striæ; a groove below the suture of the upper whorls, becoming obsolete near the last whorl; outer lip acute, slightly emarginate at the top, striated within. Length, 5 mill.

Mauritius.

Described by G. and H. Nevill as *C. balteata*, a name preoccupied by Gould.

C. CLATHRATA, Brazier.

Shell ovately fusiform, yellowish white, polished, longitudinally roundly ribbed, ribs smooth, interstices clathrate; suture canaliculated, noduled above and below, whorls six, convex, the last lower half transversely grooved on the back giving the surface a noduled appearance; aperture white, nearly oblong-ovate, columella straight, with thin lip, having three white nodules, peristome thin at edge, thickened internally, having eight tubercles, the second upper one prominent, somewhat lirate, sinuate at the upper part, canal short, narrow.

L. 7, diam. 4 mill.

Katow, New Guinea, 7 fms., sandy mud bottom (Brazier).

An unfigured species with which I am unacquainted.

C. ISOMELLA, Duclos. Pl. 57, fig. 26.

Shell clathrate by longitudinal ribs and revolving striæ; white, variegated with orange-brown; lip thickened, smooth within.

Length, 11 mill.

Habitat unknown.

This and the several following species have been figured and named by Duclos, but not described, nor recognized by subsequent monographers. The present species may possibly be a small Pleurotomid.

C. LINIGERA, Duclos. Pl. 57, fig. 27.

Shell of the general character of the preceding species, but narrower, with stronger ribs and slightly dentate within the aperture. Length, 6 mill.

Habitat unknown.

C. OXYLLIA, Duclos. Pl. 57, fig. 28.

Shell broad ovate, spire and upper portion of body-whorl strongly ribbed; with revolving striæ below, becoming obsolete on the middle and upper portion of the body-whorl; lip with an external varix, strongly dentate within; yellowish brown maculated with chestnut. Length, 5+ mill.

Habitat unknown.

C. ACLEONTA, Duclos. Pl. 58, fig. 31.

Shell longitudinally ribbed, with revolving striæ at the base; light chestnut-color; columella tuberculated, outer lip dentate within. Length, 9 mill.

Habitat unknown.

Perhaps a variety of *C. oxyllia.*

C. CLEDONIDA, Duclos. Pl. 58, fig. 29.

Shell with tabulated whorls, biangulated on the body-whorl, and nodulated on the angle, longitudinally ribbed, crossed by impressed striæ; yellowish brown. Length, 4·5 mill.

Habitat unknown.

C. RUMILIA, Duclos. Pl. 58, fig. 30.

Shell with distant well-rounded whorls, and distant rounded ribs crossed by revolving, narrow riblets, contracted into a short open canal below; inner lip slightly plicate, outer lip dentate within; brown, darker on the ribs. Length, 7 mill.

Habitat unknown.

C. PROSYMNIA, Duclos. Pl. 58, fig. 32.

Form and sculpture of the shell very like the preceding species; but the ribs are flatter, the revolving riblets replaced by striæ or grooves forming smaller tubercles between the intersections, outer lip more strongly dentate within; chestnut-colored. Length, 7 mill.

Habitat unknown.

C. ANAIDEA, Duclos. Pl. 58, fig. 33.

Shell with elevated spire, moderately convex whorls and well-impressed sutures; longitudinally ribbed, the ribs becoming

evanescent towards the middle of the body-whorl; with fine revolving striæ, most conspicuous towards the base; lip thickened and strongly toothed within; yellowish white.

Length, 7 mill.

Habitat unknown.

Possibly a fossil, or water-worn if recent.

C. ORTIGIA, Duclos. Pl. 58, fig. 34.

Differs but little from *C. anaidea*, Duclos; the teeth within the outer lip are finer and more numerous. Length, 6 mill.

Habitat unknown.

C. NEPTUNIA, Duclos. Pl. 58, fig. 35.

Shell clathrate by longitudinal and revolving riblets; aperture rather large, the outer lip toothed within; chocolate-brown.

Length, 5 mill.

Habitat unknown.

C. ORTONIA, Duclos. Pl. 58, fig. 36.

Shell white, covered by nodules formed by the intersection of close longitudinal and spiral sculpture; aperture slightly toothed within. Length, 9 mill.

Habitat unknown.

Much resembles *C. prosymnia*, described above.

C. SEGESTA, Duclos. Pl. 58, fig. 37.

Shell ovate-oblong with shouldered whorls, and distant, rounded, longitudinal ribs and revolving striæ in the interstices, becoming continuous towards the base of the body-whorl where the ribs are evanescent; aperture contracted by a columellar callus and the outer lip into a short oblique anterior canal; outer lip with small teeth on the inner margin; yellowish with a chestnut band covering the shoulder and a narrower, interrupted one on the periphery of the last whorl. Length, 5 mill.

Habitat unknown.

C. TESTINA, Duclos. Pl. 58, fig. 38.

Shell ovate, with conical spire, last whorl obtusely angulated on the periphery, where the longitudinal ribs apparently become subnodulous, those of the spire forming nodules above the sutures; grayish or yellowish white, the nodules chocolate or blackish; outer lip widely sinuated behind, denticulated within.

Length, 7 mill.

Habitat unknown.

C. STRIATULA, Dunker. Pl. 58, fig. 39.

Shell subcylindrical, with acuminated and sharp-pointed spire, closely longitudinally plicate, the plicæ sometimes becoming obsolete towards the middle of the body-whorl, with close revolving striæ crossing over the ribs, but strongest towards the base of the shell; lip varicosely thickened externally and slightly plicate within; yellowish, with chestnut fascicles at the sutures and one or two bands of oblique chestnut spots.

L. 7·5 mill., diam. 2·5 mill.

Taheiti.

Described from specimens which formed a portion of the original collection of this species.

C. COSTELLIFERA, Pease.

Shell oblong-ovate, longitudinally ribbed; ribs about twenty, close, compressedly rounded, extending the whole length of the whorls, very slightly constricted beneath the sutures; whorls five, plano-convex; aperture rather wide; sinus open, on the central third of the lip; base subtruncate; canal very short; ribs grayish white: interstices sometimes reddish brown; last whorl partially banded or irregularly painted with reddish brown. L. 5, diam. 2 mill.

Polynesia.

Unfigured, and unknown to me by specimens.

C. SULCOSA, Sowb. Pl. 58, fig. 40.

Shell lead-black, with distant, sharp, longitudinal, lighter-colored ribs, often appearing continuous from apex to base, interstices sometimes showing revolving striæ; aperture chocolate, the lip notched behind, minutely denticulate within.

Length, 8 mill.

Panama; Annaa and Lord Hood's Islands (Cuming).

C. MOESTA, C. B Adams. Pl. 58, fig. 41.

Shell very dark chocolate-color, obliquely closely ribbed, the interstices with revolving striæ; the ribs disappear upon the upper portion of the body-whorl and the striæ become continuous; lip externally varicose, notched behind, crenulated within. Length, 7·5 mill.

Panama.

Possibly only a narrow variety of *C. nigricans*, Sowb.

C. GUATEMALENSIS, Reeve. Pl. 58, figs. 42, 43.

Shell wide ovate, closely ribbed, decussated by revolving linear grooves; yellowish white, with a superior band of tessellated brown spots, and another broader one below the periphery; aperture chocolate, lip dentate within. Length, 7·5 mill.

Guatemala (Reeve); *Panama* (C. B. Adams).

This is the *C. tessellata* of C. B. Adams (fig. 43), not Gaskoin.

C. DIMINUTA, C. B. Adams. Pl. 58, fig. 44.

Shell minute, cancellated by longitudinal ribs and revolving striæ; yellowish, tinged or maculated with chestnut, with the base stained chestnut or chocolate. Length, 3–4 mill.

Panama (Adams); *Mazatlan* (Carpenter).

Anachis rufotincta, Carp., from the latter locality, is a synonym.

C. PULCHRIOR, C. B. Adams. Pl. 58, fig. 45.

Shell thin, subpellucid, smooth; yellowish, with chestnut blotches and minute dots arranged in quincunx order, the colors fascicled or filleted at the sutures; lip rather sharp, thickened and sinuated behind, with a few granules inside.

Length, 4·5 mill.

Panama.

C. UNDATA, Carpenter.

Shell small, turreted, the nuclear whorls smooth, tumid, with mammillate apex, the others longitudinally ribbed, the ribs nine in number, obsolete anteriorly and posteriorly, with distant acute spiral liræ; aperture oval, with a short, straight canal, outer lip acute, not lirate within; color reddish brown, under a thin epidermis. L. ·44, diam ·2 in.

Catalina Island, Cal.

Operculum nassoid (?), the only one obtained was broken in extracting it. The sculpture consists of elongated knobs swelling in the middle; with spiral lines hanging as it were from pier to pier, as in a suspension bridge.

C. PENICILLATA, Carpenter. Pl. 58, fig. 46.

Shell small, Metuloid, turreted, yellowish, more or less marbled with chestnut; nuclear whorls two, helicoid, tumid, with mammillary apex; normal whorls six, convex, with rounded longitudinal

ribs crossed by strong spiral striæ; aperture pyriform, effuse below, the lip posteriorly sinuate. Length, 4·5 mill.

Sta. Barbara, S. Diego, Catalina I., California, shore to ten fathoms.

Belongs to a small group of narrow elongated species inhabiting the West Coast of North America.

C. SUBTURRITA, Carpenter. Pl. 58, fig. 47.

Shell narrow, subcylindrical, consisting of seven moderately convex whorls; with close oblique longitudinal ribs and revolving striæ in the interstices; yellowish to chocolate-brown; aperture small, broadly oval, the lip acute and smooth within.

Length, 4·5 mill.

Todas Santos Bay, L. California (Hemphill).

C. TINCTA, Carpenter.

An unfigured species, small, turreted, white, longitudinally costate and spirally striate, tinged with reddish orange on the costæ; aperture subquadrate, lip thickened in the middle.

L. 5 mill., diam. 2 mill.

Cape St. Lucas, L. California.

The only specimen I have seen of this species, is not in sufficiently good condition for figuring. It is very narrowly cylindrical, with the aperture very small for the length of the shell.

C. FUSCOSTRIGATA, Carpenter.

Shell small, turreted, livid, shining, with a chestnut band; subobsoletely longitudinally ten-ribbed. L. ·13, diam. ·045 in.

Cape St. Lucas, L. California.

Described from a single specimen, which I have not seen. Unfigured.

C. SERRATA, Carpenter.

Shell sculptured with undulated, indistinct, longitudinal ribs and revolving striæ, under a fimbriated epidermis; fuscous, maculated with purple. L. ·28 in., diam. ·13 in.

Mazatlan to *Cape St. Lucas.*

C. NIGROFUSCA, Carpenter.

Shell blackish-brown, with subundulated livid lines; whorls flattened, with longitudinal ribs, the interstices and base of body-whorl spirally striate; lip varicose, sinuated behind, dentate within. L. ·4, diam. ·15 inch.

Mazatlan.

C. ALBONODOSA, Carpenter.

Shell greenish white, maculated and marked with zigzag lines of chestnut, and maculated with white below the sutures; whorls flattened, obsoletely costate, and spirally striate towards the base; lip dentate within. L. ·13, diam. 063 in.

Mazatlan.

The above three minute species remain unfigured; very few specimens occurred.

C. STEARNSII, Tryon. Pl. 58, fig. 48.

Whorls five, convex; surface white, with fine revolving grooves and no ribs; lip simple, ribbed within. Length, ·16 inch.

Tampa Bay, W. Florida.

Described by Mr. Stearns under the specific name of *filosa*, preoccupied by Angas for an Australian species.

C. HORDEACEA, Philippi.

A minute, unfigured species, longitudinally costate and the costæ becoming evanescent upon the body-whorl which is striate at the base; orange-brown, with a darker central band; lip thickened and crenate within.

Red Sea.

Unidentified by subsequent explorers.

C. GUILDINGII, Sowb. Pl. 58, figs. 49, 50.

Shell longitudinally ribbed, decussated with spiral striæ, last whorl with subangulated periphery; aperture ovate, sinuous, finely denticulated within; yellowish chestnut to dark chocolate, strigate longitudinally with a darker shade of color, with a central, irregular white band. Length, 8 mill.

West Indies.

C. CATENATA, Sowb. Pl. 58, figs. 51–55.

Shell longitudinally ribbed, with revolving striæ towards the base; ribs sometimes slightly nodulous at the sutures; aperture rather small, columella tuberculate, outer lip denticulated within the simple margin; yellowish or light blush-color, tessellated or interruptedly banded with chestnut. Length, 8–9 mill.

West Indies.

The typical state of this species shows two bands of spots, more or less defined by darker borders, but the coloring is very irregular, the bands being usually barely indicated by a closer

arrangement of spots and streaks which cover the entire surface. The latter state is represented by *C. mitrula*, Dunker (fig. 52), an intermediate one by *C. costulata*, C. B. Ad. Other synonyms are *C. Antillarum*, Reeve (fig. 53), *C. scutulata*, Reeve (fig. 54), *C. sparsa*, Rve. (fig. 55).

C. VIRGINEA, Gould.

Shell minute, rhomboidally fusiform, with fourteen longitudinal plications and a few anterior revolving striæ; whorls six, subtabulate, with an impressed subsutural line; aperture narrow, the lip without teeth. L. 4, diam. 1 mill.

China Seas (Stimpson).

Unfigured. The types were probably destroyed in the great Chicago fire.

Section VIII. **Mitropsis**, Pease.

The only character in the description by which this group is distinguished from Seminella is the plicate columella, yet these plications appear in the figure of the only species to be connected with the external basal grooving; its distinctness from Seminella must be considered doubtful. Pease described it as a genus of Mitridæ.

C. PAUMOTENSIS, Tryon. Pl. 58, fig. 56.

Shell fusiform, much attenuated at both ends, white, shining, spire small, slender; whorls longitudinally ribbed; ribs rather remote, rounded, descending from the sutures, last whorl gibbous on its right side; transversely finely striate; sutures widely and deeply grooved; base grooved transversely; canal recurved, columella four-plaited. Length, 7 mill.

Paumotus.

"The callosity bordering the inner lip gives it a Columbelloid appearance." The above is Pease's description of *Mitropsis fusiformis:* the specific name being preoccupied in Columbella, I am forced to change it.

Section IX. **Conidea**, Swainson.

Shell oval, mitriform, smooth, with moderately elevated, convex spire; inner lip reflected in front; outer lip incurved and thickened in the middle and crenulate within.

C. OVULATA, Lam. Pl. 59, figs. 57, 58.

Shell covered with fine revolving striæ; dark chocolate-color irregularly spotted, clouded or strigated with white.

Length, 12–15 mill.

West Indies, on pieces of madrepore, stony ground, 1 to 2 feet water.

Many specimens are proportionally narrower than my figure; I have also before me a narrow variety (*C. ovuloides*, C. B. Ad., fig. 58), in which the color is light chestnut, the white markings usually including an irregular central band.

C. OBTUSA, Sowb. Pl. 59, figs. 59, 60.

Shell oblong-cylindrical, with an obtuse but sharp-pointed spire, smooth; roseate or yellowish with chestnut spots or zigzag lines; sometimes chestnut, with zigzag lines and reticulations of yellowish white; epidermis thin, translucent, finely ridged; interior of aperture violet or purple. Length, 12–16 mill.

Viti and other Polynesian Islands.

C. MARMORATA, Gray. Pl. 59, figs. 61, 62.

Shell fulvous orange, with irregular white markings.

Length, 11–14 mill.

South Australia (Angas); *Philippines* (Cuming); *Viti Islands* (Garrett).

Distinguished from the last species at once by its form and more simple coloring.

C. DORMITOR, Sowb. Pl. 59, fig. 63.

Shell closely marked by revolving striæ; violaceous, under a smooth, semitransparent chestnut epidermis. Length, 8 mill.

West Indies.

C. EGERIA, Duclos. Pl. 59, fig. 64.

Shell yellowish, clouded with light chestnut; body-whorl somewhat folded on the back, beneath the suture. Length, 13 mill.

Habitat unknown.

C. TRINGA, Lam. Pl. 59, figs. 65, 66.

Oblong, cylindrical, smooth, under a very thin epidermis; white, with chocolate spots and stripes, usually arranged in a zigzag longitudinal manner. Length, ·7–1 inch.

New Caledonia; Viti Islands; Japan.

A minor variety of this species, the adults not exceeding ·7

inch in length, appears to be a connecting form with *C. pardalina*, var. *sagena*. *Voluta tringa* of Linnæus and of Lamarck's first edition is a difficult species to make out; it has been referred, with some justice, to Mitra. In the second edition of Lam., Deshayes repeats the original description, including the three-plicate columella, but decides that the shell is a Columbella. I do not think he had good grounds for this decision, but as the shell I herein figure has become known to conchologists under this specific name and authority it appears more convenient to continue to use them. *C. undata*, Duclos (fig. 66), is a synonym.

C. FLAVA, Brug. Pl. 59, figs. 67–72.

Shell cylindrically oblong, smooth, with revolving striæ towards the base, covered by a thin epidermis; orange-brown to chocolate, spotted and blotched with white, interior of aperture usually more or less violaceous. Length, ·75–1·1 inches.

Indian Ocean, Japan, Mauritius, New Caledonia, Polynesia.

I figure two well-marked types of coloring in this species; it is very variable, approaching *C. tringa* on the one side and *C. discors* on the other, and it is not unlikely that these, as well as several other allied species, will eventually be consolidated. *C. punctata*, Sowb. (fig. 69), *C. lugubris*, Kiener (fig. 70), *C. funiculata*, Souv. (fig. 71), are synonyms. *C. rubicundula*, Quoy (fig. 72), may possibly belong here; it is unknown to me except through the description and (apparently) poor figure.

C. DISCORS, Gmelin. Pl. 59, figs. 73–77.

Shell obovate, with short, conically convex spire; chestnut-colored or orange-red, spotted or interruptedly strigate with white, with frequently a few larger white spots and a broad orange sutural band; interior of aperture often violaceous.

Length, ·75–1 inch.

East Africa, Borneo, Japan, Philippines, New Guinea.

The synonyms are *C. semipunctata*, Lam. (fig. 74), *C. splendidula*, Sowb. (fig. 75), *C. zelina*, Duclos, (fig. 77).

C. EUSTOMA, Jousseaume. Pl. 59, fig. 78.

Shell oblong, obesely acuminate, smooth, shining, white maculated with chestnut; aperture violet-tinted. Length, 15 mill.

Habitat unknown.

The figure appears to represent a shell of abnormal growth.

Section X. **Meta**, Reeve.

Shell coniform, with short, conic spire; aperture narrow, linear; outer lip nearly straight, crenulated within.

C. PHILIPPINARUM, Reeve. Pl. 59, figs. 79–82; Pl. 60, figs. 83–87.

Shell white, with longitudinal zigzag lines and spots of chestnut, sometimes widened and darkened so as to form an interrupted superior revolving band; aperture usually white within. Length, ·75–1·1 inches.

Batavia, Philippines.

With this species I unite *C. epamella*, Duclos (fig. 81). The following are all probable varieties of *C. Philippinarum.*

Var. CONIFORMIS, Sowb. Fig. 82.

Whorls rather sharply angled at the upper part, the spire superficially channeled; white, closely reticulated with chestnut or chocolate. Length, 1·1 inches.

Habitat unknown.

Var. CEDO-NULLI, Reeve. Figs. 83–87.

Shell chestnut, conspicuously blotched with white, sometimes forming a sutural band of alternating white and chestnut spots. *C. Dupontiæ*, Kiener (fig. 84), and *C. macrostoma*, Anton (fig. 85) appear to be synonyms; the latter not fully adult.

Var. DUBIA, Sowb. Figs. 86, 87.

Shell orange or rosy orange, sometimes with a central band of white and chestnut spots.

Section XI. **Strombina**, Mörch.

Shell fusiform, turriculated; spire elevated, sharp; whorls gibbous, nodulous; inner lip with a rather thick callus; outer lip thick, sinuous behind; anterior canal well formed. The group is characteristic of the warm and tropical seas of the West Coast of America.

C. BICANALIFERA, Sowb. Pl. 60, fig. 88.

Shell smooth, spirally grooved at the base; lip expanded and margined externally, thickened and finely crenulated within, rostrated posteriorly and separated from the body-whorl by a deep channel; pale livid, longitudinally painted with waved

chestnut lines, external lip-margin chestnut, interior of aperture pale violaceous. Length, 12–15 mill.

Panama, Galapagos Is.

C. GIBBERULA, Sowb. Pl. 60, fig. 90; Pl. 63, fig. 71.

Body-whorl with callous humps on the back and side; these are white, the rest of the surface having a reticulation of chestnut lines on a yellowish white surface; lip varicosely thickened externally, smooth or slightly crenulated within. Length, 12–16 mill.

W. Coast of Central America; Payta, Peru (d'Orb.).

C. CALLOSIUSCULA, Tapparone-Canefri.

Shell fusiform, solid, shining, luteo-corneous, marked with chestnut, subpellucid; whorls irregularly longitudinally strigate or subcostulate, the last gibbous and callous on the back, sulcate at the base; lip thickened and white externally, slightly dentate in the middle internally. L. 9, diam. 3·66 mill.

Papuan Islands.

Unfigured. Closely allied to the preceding, but smaller, narrower, without side callus, etc.

C. ALBERTISII, Tapparone-Canefri.

Resembling the preceding species, but larger; luteo-corneous, with an articulated zone of chestnut and white at the suture, and two narrower chestnut zones below, marked longitudinally with irregular, interrupted chestnut lines. L. 11, diam. 4 mill.

Papuan Islands.

Unfigured. Somewhat larger and differently colored from *C. callosiuscula*.

C. CLAVULUS, Sowb. Pl. 60, fig. 89.

Shell yellowish white, with zigzag or reticulated markings of chestnut or chocolate; outer lip externally greatly thickened, the posterior canal sometimes in advance of the posterior end, this displacement apparently caused by a callous thickening of the hind part of the parietal wall. Length, 23 mill.

Bay of Montija, W. Coast Centr. Am. 17 fms. (Cuming).

Described as a Pleurotoma, but the position of the sinus appears to be merely accidentally displaced by the development of the callus. I am somewhat doubtful whether this is really distinct from the next species.

C. DORSATA, Sowb. Pl. 60, fig. 91.

Yellowish white, maculated and closely longitudinally marked with flexuous or zigzag chestnut lines; aperture externally callously thickened, with a corresponding thickening on the opposite side of the body-whorl, and a hump on its back.

Length, ·8–1·1 inches.

West Coast of Columbia; Central America.

C. gibberula, very much resembles this species, but is much smaller.

C. PAVONINA, Hinds. Pl. 60, figs. 92, 93.

Shell yellowish white, longitudinally, flexuously striped and strigated with chocolate; striate towards the base, which is narrowed and recurved; lip callously thickened externally, denticulate within. Length, 22 mill.

Panama.

C. Haneti, Petit (fig. 93), is a synonym.

C. NIVEA, Sowb. Pl. 60, fig. 94.

Whorls strongly plicate, with the interstices and base striate; white. Length, 19 mill.

Habitat unknown.

Reeve acknowledges that this is not a very satisfactory species. I am inclined to think it a distorted growth of *C. pavonina*, as in that species some of the growth-lines are incipient plications and the superior striæ are sometimes recognizable with a glass. It was probably beach-worn.

C. BOURJOTIANA, Crosse. Pl. 60, fig. 95.

Shell smooth, white, with light chestnut undulated longitudinal lines; aperture light yellowish, white-margined, nearly edentulous within. Length, 14 mill.

Habitat unknown.

C. PULCHERRIMA, Sowb. Pl. 60, fig. 96.

Shell spirally ridged and longitudinally plicated, the spire acuminated, with a sharp apex; yellowish brown, the ridges tinged with chestnut; lip thickened, strongly dentate within.

Length, 23 mill.

Gulf of Dulce, Central America.

Described from a single specimen, dredged by Mr. Cuming from sandy mud at a depth of ten fathoms. It is remarkably distinct from all its congeners.

C. MACULOSA, Sowb. Pl. 60, fig. 97.

Whorls tubercularly coronated; white reticulated with chestnut. Length, 1 inch.

West Coast of Central America to *Cape St. Lucas.*

C. ELEGANS, Sowb. Pl. 60, fig. 98.

Shell regularly and somewhat closely longitudinally ribbed, with revolving striæ towards the base; yellowish white, longitudinally marked with chestnut zigzag lines; aperture white, outer lip strongly dentate within. Length, 1·5 inches.

Guacomayo, W. Co. Central America, in sandy mud.

C. TURRITA, Sowb. Pl. 60, figs. 99, 100.

Shell smooth; yellowish white, closely reticulated with chestnut, articulated at the suture; aperture whitish, without teeth. Length, 35 mill.

West Coast of Central America, in coarse gravel and sand at 10 fathoms (Cuming).

Sowerby has figured a pale variety of this species (fig. 100), in which the color-markings are sharply angular.

C. ANGULARIS, Sowb. Pl. 60, fig. 1.

Whorls with strong longitudinal ribs, the last one with an angulated periphery, below which the ribs become obsolete and are replaced by revolving striæ; aperture strongly dentate within; yellowish white, stained with chestnut. Length, 32 mill.

Panama.

Described from a single specimen obtained by Mr. Cuming. I suspect that several of the species of this group will prove to be mere variations of a single type when a sufficient series has been obtained to study them properly.

C. SUBULATA, Sowb. Pl. 60, fig. 2.

Whorls with a narrow shoulder defined by a carina, covered by revolving striæ; lip externally thickened, strongly and numerously dentate within; epidermis yellowish, stained with light chestnut. Length, 1·5 inches. *Habitat unknown.*

Described many years ago from a single specimen and yet remaining unique. The carina indicates abnormal growth. The specific name is preoccupied by Duclos for a species which he figured without description and which has not been subsequently identified.

C. RECURVA, Sowerby. Pl. 60, figs. 3, 4; Pl. 61, fig. 7.

Shell yellowish white, more or less stained with chestnut. Length, 1·1–1·5 inches.

W. Coast of Central America.

With this I unite *C. lanceolata*, Sowb. (fig. 4), and *C. fusiformis*, Hinds (fig. 7), the distinctive characters of those species being included in the range of variation exhibited by a large series of *C. recurva*.

C. TERQUEMI, Jousseaume. Pl. 61, fig. 8.

Shell yellowish brown; whorls eight, the first four rather smooth, the others longitudinally costate and spirally striate, the last gibbous above, the costæ disappearing below the shoulder on which they form tubercles; lip thickened externally, bituberculate within. Length, 19 mill. *Habitat unknown.*

Described from a single specimen in Dr. Jousseaume's collection.

C. PUMILIO, Reeve. Pl. 60, fig. 6.

Shell fusiform, thick, rather gibbous, spire turreted, whorls rudely angled and noduled, nodules on the last whorl swollen, irregular; whitish, faintly tinged with orange-brown; aperture narrow, lip thickly varicose, obtusely denticulated within. Length, ·75 inch. *Cumana, Venezuela* (Dyson).

Very closely allied to *C. recurva*, but of shorter growth, more humped, and more irregularly noduled; and from its habitat there is also reason to believe it distinct. The figure represents a reversed specimen and it is (except that of *C. nivea*) the only reversed figure that I have noticed. The above description is copied from Reeve; the locality is very doubtful. It appears to be closely related to *C. Terquemi*, Jouss., described above.

Undetermined Species of Columbella.

C. DIGITALE, Lesson; C. CLATHRA, Lesson. *Sandwich Islands.*
C. PULICARIS, Lesson. *Marquesas Islands.*
C. APTHÆGERA, Lesson. *Acapulco.*
C. AMPLA, Lesson. *Gambier Islands.*
C. BUCCINOIDES, Lesson. *W. Coast of Central America.*
C. NIVEA, CINGULATA, FUSIFORMIS, PURPUROIDES and RETUSA, Anton. All without locality.

Genus **ALCIRA**, H. Adams.

The single species of this group is readily distinguished from other Columbellæ by its somewhat expanded, simple lip and oblique columellar fold.

A. ELEGANS, H. Adams. Pl. 61, fig. 9.

Shell elongate, reddish-brown; whorls six, slightly convex, transversely striated (the striæ stronger and more numerous on the basal portion of the last whorl), variegated with darker markings, and with some lighter spots next the suture; aperture equaling the spire in length. Length, 12–15 mill.

Cape of Good Hope.

Genus **ÆSOPUS**, Gould.

Shell fusiform, gibbous, widely truncate in front; aperture lunate, with a posterior callus, columella simple, vitreous; suture abnormally arcuate near the aperture. Animal white, emarginate anteriorly, obtuse posteriorly, bearing a flabelliform corneous operculum; head small, with short obtuse tentacles; eyes median, external; siphon broad and very short. The curious curve of the suture near the posterior angle of the aperture, as if it had been drawn backward, thereby pulling back this angle and curving the last whorl downward, is very peculiar. The form and aspect of the shell, and the structure of the animal, indicate its place to be intermediate between Mitra and Columbella.

Æ. JAPONICUS, Gould.

Shell small, with seven somewhat tumid whorls, plicate posteriorly, covered by revolving striæ; last whorl widely truncate, oval, three-fifths the length of the shell; aperture lunate, the lip reflected, columella with a wide, vitreous, suberect lamina; chestnut-colored, lighter around the sutures. L. 7, diam. 2 mill.

Kagosima Bay, Japan; 5 fms., sandy bottom (Stimpson).

Unfigured.

Genus **ENGINA**, Gray.

Shell ovate-conic; spire sharp, with longitudinal nodulous ribs, decussated by revolving lines or riblets; aperture narrow, with several oblique plications in front; outer lip thickened, internally toothed, gibbous and grooved posteriorly.

E. NODULOSA, Pease. Pl. 61, fig. 10.

Shell dark chocolate, encircled by a narrow, white central band; aperture bluish white. Length, 15 mill.

Ebon Isl., Polynesia.

E. CARBONARIA, Reeve. Pl. 61, figs. 11–13.

Shell whitish, crossed by dark chocolate longitudinal tubercular ribs; aperture often salmon-colored. Length, 15–18 mill.

Philippines (Cuming); *Panama* (C. B. Adams); *Galapagos Is.* (Wimmer).

E. forticostata, Reeve (fig. 12), and *E. crocostoma*, Reeve (fig. 13), are synonyms.

E. ASTRICTA, Reeve. Pl. 61, figs. 14, 15.

Shell yellowish white, with low rounded longitudinal ribs, and close, narrow, dark chestnut revolving riblets. Length, 15 mill.

Andaman Is. (E. A. Smith); *Mauritius* (von Martens).

E. leucozia, Duclos (fig. 15) appears to be identical. *Ricinula iostoma*, Reeve (*Man.* II, 188, t. 58, f. 248) is also possibly a synonym.

E. ALVEOLATA, Kiener. Pl. 61, figs. 16–20.

Shell longitudinally ribbed, ribs cut into tubercles by revolving grooves; yellowish white, with alternate interrupted revolving bands of chocolate and orange, each usually tipping the tubercles only, and of the width of two tubercles; aperture yellowish to dark chocolate. Length, 15–18 mill.

Philippine, Viti, Caroline Is., Australia (Brazier).

The usual coloration of the species, as described above, is represented by *E. lauta*, Reeve (fig. 18), the figures of *E. alveolata* given by Kiener (figs. 16, 17) being without the orange bands. *E. alveolata* of Reeve, Carpenter, etc., is a very different species. Other synonyms are *E. histrio*, Reeve (fig. 19) and *E. trifasciata*, Reeve (fig. 20)—the latter a scarcely distinguishable variety, in which the decussation is not so strongly marked as in the typical form.

E. ZEPA, Duclos. Pl. 61, fig. 21.

Shell yellowish white, the tuberculations of the longitudinal ribs colored by alternate revolving bands of dark chocolate and orange. Length, 6 mill.

Habitat unknown.

Figured and named but not described. It is very much smaller than the last species, but otherwise so greatly resembles it that I suspect it to be the same. This and the following several species figured by Duclos have not been identified by any subsequent conchologist.

E. IODOSIA, Duclos. Pl. 61, fig. 22.

Yellowish, with a superior white band, having the width of three tubercles on the body-whorl, and of one tubercle on those of the spire. Length, 6·5 mill.

Habitat unknown.

Very like the preceding species in sculpture, but differs in coloring and in the aperture.

E. MONILIFERA, Pease. Pl. 61, fig. 26.

Shell covered with close, large, rounded longitudinal ribs, cut into large tubercles by revolving grooves; yellowish brown. Length, 7 mill.

Sandwich Isles (Pease); *Solomon Is.* (Brazier).

Very probably = *E. iodosia*, Duclos. Specimens from the latter locality are stated by Mr. E. A. Smith to have a median purplish band, with three spiral rows of tubercles, yellow, including the first, fifth and seventh rows.

E. TELEA, Duclos. Pl. 61, fig. 23.

Gray, with several interrupted dark red revolving lines. Length, 6 mill.

Habitat unknown.

E. ANAKISIA, Duclos. Pl. 61, fig. 24.

Grayish white, with some dark red spots on the tuberculations. Length, 4·5 mill.

Habitat unknown.

The outer lip is very peculiarly thickened and sculptured—otherwise the species much resembles *E. telea*. The spire has lost the apex, by erosion, apparently.

E. EPIDELIA, Duclos. Pl. 61, fig. 25.

Gray, with very dark chocolate spots on the rather distant ribs, forming three interrupted bands. Length, 12 mill.

Habitat unknown.

E. SATORIDA, Duclos. Pl. 61, fig. 27.

Ribs rather distant, prominent, well-rounded; dark chestnut, with numerous narrow, nearly black revolving lines.

Length, 5 mill.

Habitat unknown.

E. NUMICIA, Duclos. Pl. 62, fig. 28.

Yellowish brown, with three chocolate bands. Length, 6 mill.

E. REEVEI, Tryon. Pl. 62, fig. 29.

Yellowish white, ribs marked with chocolate, forming interrupted revolving bands. Length, 16 mill.

Panama to *Cape St. Lucas, L. Cal.*, *Australia* (Brazier).

Figured by Reeve as *Ricinula alveolata*, Kiener—a very different species. The Australian habitat is given upon the authority of an excellent conchologist.

E. BELLA, Reeve. Pl. 62, figs. 30–32.

Spire conically acuminate, base of aperture contracted, elongated and recurved; roseate, with two broad chestnut bands, within which the tubercles are lighter. Length, 20 mill.

Philippines (Cuming); *Polynesia* (Pease);
Lord Hood's Isl. (Cuming); *Solomon's Is.* (Brazier).

I include in the synonymy *E. recurva*, Reeve (fig. 31), and *E. fragaria*, Wood (fig. 32). I have already described and figured this species as a Peristernia (vol. iii, 82), but reproduce it here, as the generic characters are not very strongly marked, and some good conchologists prefer to consider it an Engina.

E. PULCHRA, Reeve. Pl. 62, fig. 33.

Shell gibbous, angularly shouldered, strongly ribbed, crossed by revolving riblets; violet-brown, with a light central band.

Length, 15–18 mill. *Panama, Galapagos Is.*

It is *E. Reeveana*, C. B. Ad. Mr. Pease writes:* "I have received from Dr. P. P. Carpenter a specimen from the Galapagos Islands, labeled 'Type of (*Sistrum*) *ochrostoma*,' and also one from Cape St. Lucas, described by him as '*ochrostoma*, var. *rufonotata*.' They differ widely from the Polynesian *ochrostoma*, Blainv., belonging to another genus—Engina. The type agrees with the description of *Buccinum pulchrum*, Reeve, collected by Cuming at the Galapagos Is."

* Am. Jour. Conch., iv, 116.

E. ROSEA, Reeve. Pl. 62, figs. 34, 35.

Rose-color zoned with dark chocolate; aperture rose-color.
Length, 15–21 mill.

West Indies; Philippines (Cuming).

E. Schrammi, Crosse (fig. 35), was described from a small specimen 9 mill. long. The West Indian habitat is attested by specimens before me from three different islands; that of the Philippines needs confirmation. When the shell becomes water-worn, the pink coloring has changed to white, the dark chocolate to light chestnut.

E. RUTILA, Reeve. Pl. 62, fig. 36.

Shell grayish pink, with dark chocolate zones.
Length, 21 mill. *Habitat unknown.*

I suspect that this will prove a synonym of the preceding species.

E. DEFORMIS, Reeve. Pl. 62, fig. 37.

Alternately banded with reddish yellow and brown.
Length, 17 mill. *Habitat unknown.*

I think this will also prove to be a synonym of *E. rosea.*

E. FARINOSA, Gould. Pl. 62, fig. 40.

Distantly longitudinally ribbed, and spirally granularly striated; yellowish brown, with indistinct dusky bands.
Length, 15 mill. *Sandwich Islands.*

Hindsia angicostata, Pease, and *Triton elegans*, Thompson, are synonyms. The latter was said to have been discovered living in Dublin Bay, an obvious error.

E. TURBINELLA, Kiener. Pl. 62, figs. 38, 39.

Spire conical, with a row of tubercles above the suture, the latter forming an angle on the last whorl, and below it several thin raised lines which are sometimes subnodulous; surface between these lines, and on the spire covered with fine revolving striæ; dark chocolate, the tubercles, and occasionally the inferior nodules white; aperture usually chocolate, with the teeth white.
Length, 15 mill.

West Indies.

Engina elegans, Gray, an unfigured species, may almost certainly be assigned here.

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E. CONTRACTA, Reeve. Pl. 62, figs. 41, 42.

Shell yellowish brown, interior of aperture white or rosy, teeth white. Length, 13–18 mill.

Panama and *St. Elena*, *W. Columbia*, under stones (Cuming).

I do not find any good distinctive characters in the figure of *E. acuminata*, Reeve (fig. 42).

E. EXIMIA, Reeve. Pl. 62, fig. 43.

Shell fusiform, spire acuminated, whorls rounded, concentrically finely ribbed, elegantly cancellated with delicate ridges; yellowish white, ridges brown in zones between the ribs.

Length, 22 mill.

Manilla, in coarse sand at 6 fathoms (Cuming).

The pertinence of this species to Engina may well be doubted.

E. FUSIFORMIS, Pease. Pl. 62, fig. 44.

Shell white or yellowish, the nodules varying from chestnut to nearly black, with a central white band, and sometimes others at the suture and towards the base; occasionally the tubercles near the base are irregularly variegated black and white; lips of aperture dark-colored. Length, 15–18 mill.

Howland Isl., *Viti Isles.*

It is a narrower form than *E. alveolata*, Kiener, but is possibly only a variety of that species. I have before me specimens with the nodules chestnut-colored and a central white band which I suppose to be identical with the unfigured *E. albocincta*, Pease.

E. OSELMONTA, Duclos. Pl. 62, fig. 45.

Shell longitudinally ribbed; orange-brown, with darker spots forming revolving series. Length, 7·5 mill.

Habitat unknown.

E. AURANTIA, Duclos. Pl. 62, fig. 46.

Surface of shell decussated into close, prominent tubercles; orange-brown. Length, 9 mill.

Habitat unknown.

E. GIBBOSA, Garrett. Pl. 62, fig. 47.

Shell yellowish brown, gibbous in the middle, constricted below; spire and upper part of body-whorl with distant ribs, whole surface covered by prominent revolving liræ; aperture yellowish within. Length, 8 mill.

Viti Islands.

I figure this from one of several specimens obligingly furnished

by Mr. Garrett. Except in its much smaller size it much resembles *E. contracta*, Reeve.

E. FUNICULATA, Reeve. Pl. 62, figs. 48, 49.

Shell short, obese, with longitudinal ribs cut into tubercles by revolving grooves; black, interstices of the ribs yellowish.

Length, 12–15 mill.

Howland Isl.

The principal distinctive character appears to be the short, obese form. *E. ovata*, Pease (fig. 48), is a synonym.

E. LINEATA, Reeve. Pl. 62, figs. 50, 51.

Shell short, ovate, solid, longitudinally nodosely plicated, white, encircled by several lead-black narrow lines. Length, 11 mill.

Philippines, N. Australia, Viti Isles, etc.

This is possibly the *C. nana* of Dillw., which Deshayes concedes to be the same as *C. zonalis*, Lam. The figure in Martini referred to in the descriptions of these species is not sufficiently well-done to banish doubt on the subject.

Var. MACULATA, Pease (fig. 51), is scarcely entitled to a varietal name.

E. ZONATA, Reeve. Pl. 63, fig. 52.

White, with dark chocolate or black bands, sometimes interrupted by the ribs. Length, 13 mill.

Galapagos Is. (Cuming); *Viti* and *Paumotus Is.* (Garrett); *Solomon's Is.* (Brazier); *Aracan* (Hanley).

E. CONCINNA, Reeve. Pl. 63, fig. 54.

Longitudinally flatly ribbed, ribs very finely noduled, white, conspicuously encircled with brown bands in which the nodules are white, edge of the lip orange-red. Length, 15 mill.

Cagayan, Isl. of Mindanao, Philippines, under stones at low water (Cuming).

Much resembles the preceding species, and is, perhaps, only a slim variety of it.

E. ARMILLATA, Reeve. Pl. 63, fig. 59.

With a nodulous keel on the upper part of the whorls, nodosely ribbed beneath, interstices smooth; whitish, the nodules alternately white and black in zones, nodules of the keel yellowish.

Isl. of Ticao, Philippines.

The ground of coloring, according to Reeve's figure, is dark, with a single white band. The figure is evidently magnified, but no dimensions are indicated. I think it will prove synonymous with *E. concinna*, Reeve.

E. PARVA, Pease. Pl. 63, fig. 55.

White, encircled by chocolate or black lines upon alternate rows of nodules and sometimes interrupted by the interstices; nodules frequently prominently sharp-pointed. Length, 6 mill.

Paumotus Is.

E. NODICOSTATA, Pease. Pl. 63, figs. 56, 57.

Two of the revolving series of tubercles are more prominent than the others at the crossings of the longitudinal ribs, so that the body-whorl appears somewhat biangulated; chestnut to chocolate-color in the interstices, the nodules white.

Length, 6·5–9 mill.

Paumotus Is. (Pease); *Viti Is.* (Garrett).

E. variabilis, Pease (fig. 57), is certainly a synonym, and I am almost persuaded of the identity of the form described by Pease from a single specimen as *E. striata.*

E. STRIATA, Pease. Pl. 63, fig. 58.

Shell somewhat angular in the middle, obsoletely longitudinally ribbed, encircled by two prominent nodose ribs, somewhat compressed, the whole surface deeply and regularly striate transversely, forming close-set ribs; columella straight; white, left side of the longitudinal ribs striped interruptedly with dark brown, aperture light purple. Length, 8 mill.

Paumotus.

E. TUBERCULOSA, Pease. Pl. 63, fig. 60.

Obsoletely longitudinally ribbed, decussated into tubercles by strong revolving grooves; black, with a median white band.

Length, 7–9 mill.

Baker Island.

The figure is from one of several specimens received from Mr. Pease.

E. PYROSTOMA, Sowb. *Panama* and *Galapagos Is.*

E. MAURA, Sowb. *Panama* and *Galapagos.*

E. LIVIDA, Sowb. *Panama.*

The above were described, but not figured, fifty years ago, and have escaped subsequent monographers; they are unknown to me.

E. ZONATA, Gray. *Atlantic Ocean.*

This is also a lost species.

E. XANTHOLEUCA, E. A. Smith. Pl. 63, fig. 61.

I figure this Mauritius species, referred by its author to Engina; my conviction is that it is a Coralliophila, and possibly identical with *C. coronata*, Barclay (vol. ii, 210 t. 66, figs. 373, 372).

E. COSTATA, Pease. (Unfigured.) *Sandwich Islands.*
? E. (BUCCINUM) PHALÆNA, Lesson. (Unfigured.) *Acapulco.*
E. ALTERNATA, Garrett. (Unfigured.) *Samoa* and *Viti Is.*
E. BELLA, Garrett. (Name preoccupied by Reeve. Unfigured.) *Samoa* and *Viti Is.*

Subgenus **Pusiostoma**, Swainson.

Shell ovate; inner lip convex between the granular teeth; outer lip internally greatly thickened and toothed in the middle.

E. MENDICARIA, Linn. Pl. 63, figs. 62, 73.

Shell usually alternately banded with black and yellowish brown or white; aperture dark chocolate; a variety has a single central yellowish band. Length, 18 mill.

East Indies, Philippines, Australia, Polynesia.

Genus **COLUMBELLINA**, d'Orb.

This group was founded on a fossil species, with which the following recent forms appear to agree in their characters.

C. HARPIFORMIS, Sowb. Pl. 63, fig. 63.

Yellowish white, openly irregularly reticulated with chestnut, sometimes irregularly marked with chestnut, with a median light band; epidermis thin, rather smooth, translucent, yellowish brown, continued over on the face of the greatly thickened outer lip. Length, 15 mill.

Panama.

C. UNCINATA, Sowerby. Pl. 63, fig. 64.

Shell fulvous olive, freckled with pale dots, encircled round the upper part with white spots interrupted with red-brown lines; aperture violaceous. Length, 11 mill.

W. Coast Central America to *Acapulco.*

The markings, as minutely described above by Reeve, are

obscured by the epidermis. This is possibly a not fully grown variety of *C. Harpiformis.*

C. CITHARA, Reeve. Pl. 63, fig. 65.

Shell somewhat squarely ovate, rather solid, whitish, reticulated with chestnut, blackish and white-blotched next the sutures, spire rather short, whorls plicately ridged around the upper part, spirally grooved below; aperture narrow, lip angularly produced and notched at the upper part, finely denticulated within.

Length, 11 mill.

Habitat unknown.

AMPHISSA, H. and A. Adams.

Shell bucciniform, longitudinally ribbed; spire elevated; aperture rather wide, enlarging below, and terminating in a wide anterior sinus; inner lip callous, plicate below; outer lip not thickened on the margin, plicate within. Operculum resembling that of Buccinum with the addition of a straight spur of callus extended towards the centre. Dentition columbelloid.

A. CORRUGATA, Reeve. Pl. 63, fig. 66.

Shell yellowish brown, sometimes obscurely spotted and variegated, white within the aperture. Length, 1 inch.

Monterey, Cal., to *Sitka.*

A. VERSICOLOR, Dall. Pl. 63, fig. 67.

Shell much smaller than *A. corrugata*, with about half the number of longitudinal ribs and revolving striæ, namely: from 14 to 17; colors very variable, pink, salmon, livid bluish purple, brown and pure white, all plain or variously marked with a network of white and brown lines, patches, dots, etc.

Length, 12 mill.

Monterey to *San Francisco, Cal.*

Mr. R. E. C. Stearns has described a var. *lineata.*

ADDENDA.

MARGINELLIDÆ.

Mr. R. E. C. Stearns gives me the following additional localities:

ERATO MAUGERIÆ, Gray. Egmont Key, Tampa Bay, W. Coast of Florida.

E. COLUMBELLA, Menke, occurs on the California Coast northward to Monterey.

E. VITELLINA, Hinds, has been found northward to within 50 miles south of San Francisco Bay.

MARGINELLA SUBTRIGONA, Carp., extends northward to Monterey, Cal.

MARGINELLA LŒBBECKEANA, Weink., is a larger individual of *Cryptospira glauca*, Jouss.

M. MEDIOCINCTA, Smith. *Volvarina Bouvieri*, Jouss., is a synonym.

M. (GRANULA) SPIRIPLANA, Jousseaume, 1882.

Shell small, conical, thin, smooth, shining white; whorls three, plane above; aperture elongate, columella scarcely thickened, five-plicate, lip thickened. L. 1·7 mill., diam. 1·4 mill.

Found in the mass of filaments surrounding the base of Euplectella.

Related to *Granula Angasi*.

M. OBLONGA (p. 32). Figured in error, t. 9, f. 77, for *M. olivella*.

OLIVIDÆ.

OLIVELLA AUSTRALIS, Tenison-Woods (p. 72).

Shell turreted, fusiform, spire produced and equalling the aperture; smooth, shining, white, reticulated with fulvous brown, and zoned with three white bands; suture scarcely impressed; aperture narrow, anteriorly dilated; outer lip thin, acute, columella simple.

Tasmania.

COLUMBELLIDÆ.

C. MILLEPUNCTATA, Carp. (p. 115), is figured Pl. 63, fig. 68.

C. ALABASTRUM, Reeve (p. 146). Add reference, Pl. 52, fig. 87.

C. SUFFUSA, Sowb. (p. 155). Add reference, Pl. 55, fig. 50.

C. NIGRICOSTATA, E. A. Smith (p. 155). The figure referred to does not represent this species, but *C. suffusa*.

C. ROSACEA, Gould. Pl. 56, fig. 78, represents this species, but fig. 79 is *C. costulata*, Cantraine.

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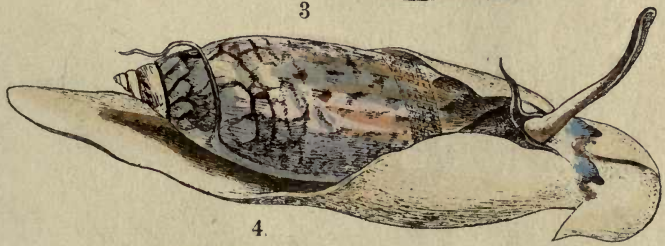

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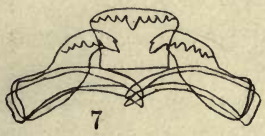

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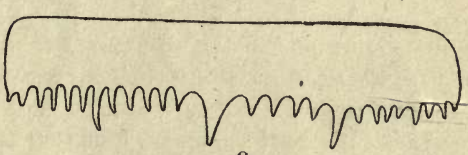

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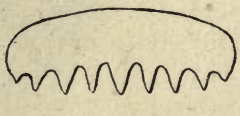

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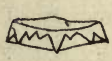

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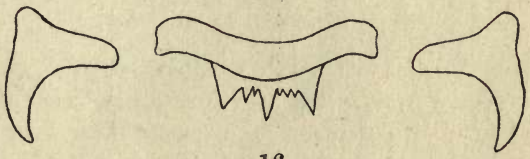

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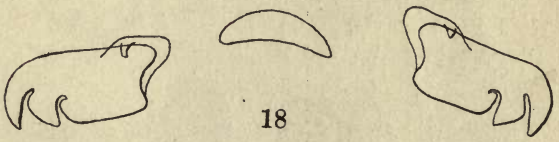

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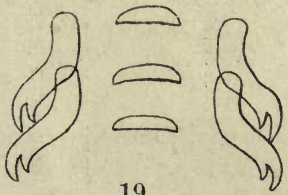

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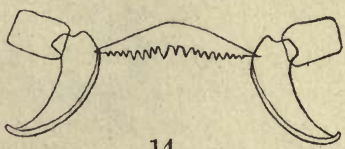

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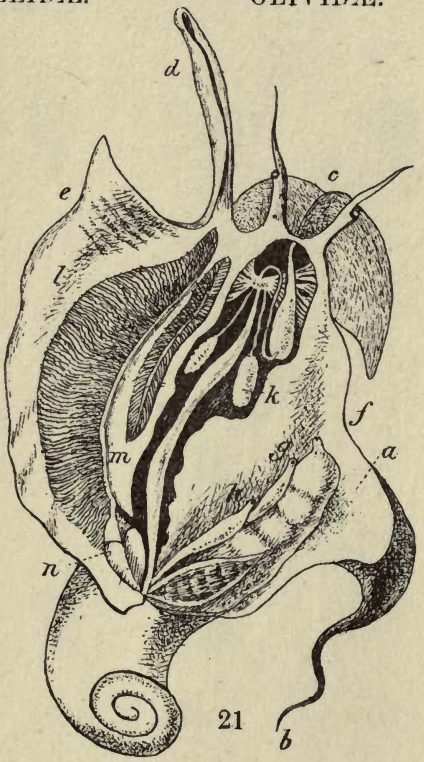

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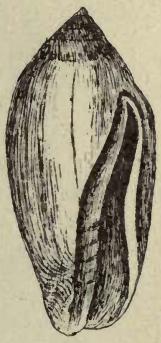

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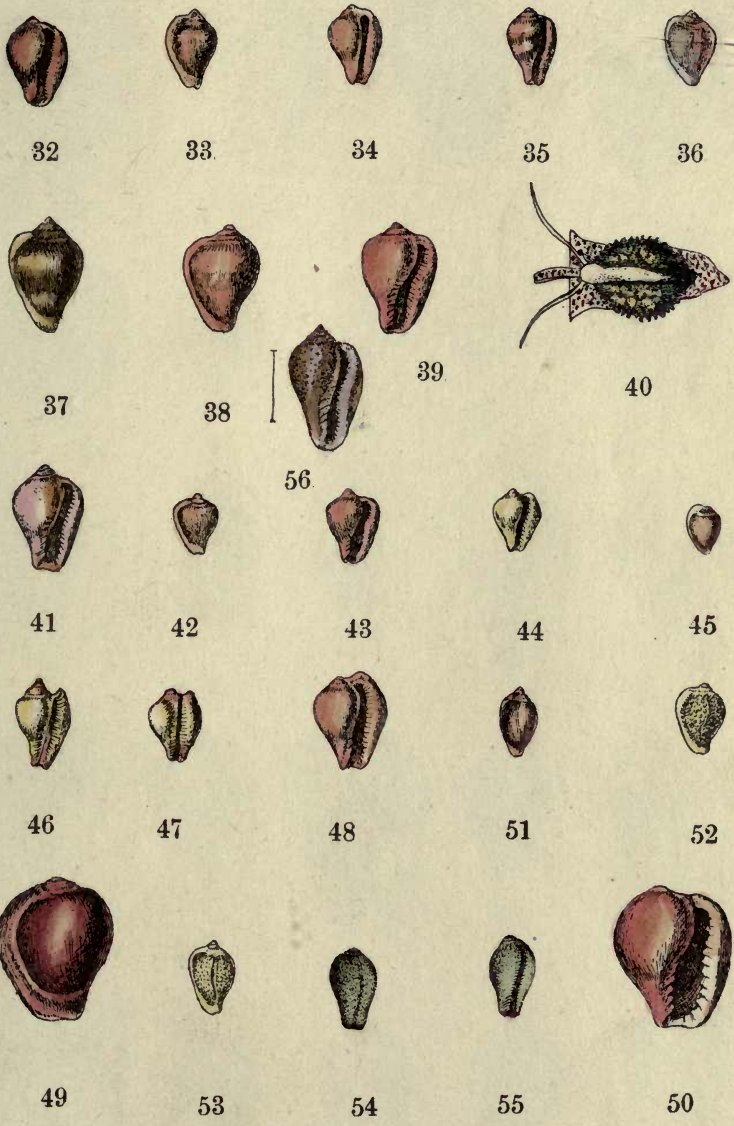

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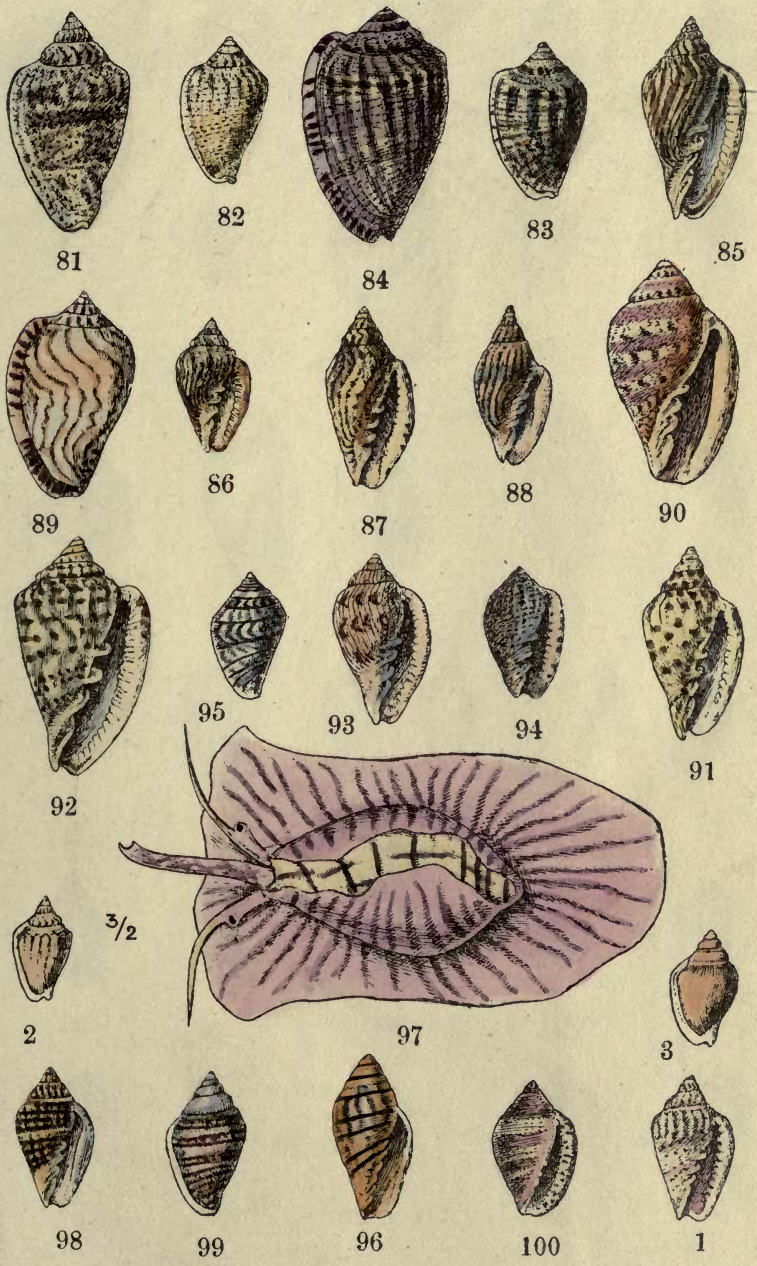
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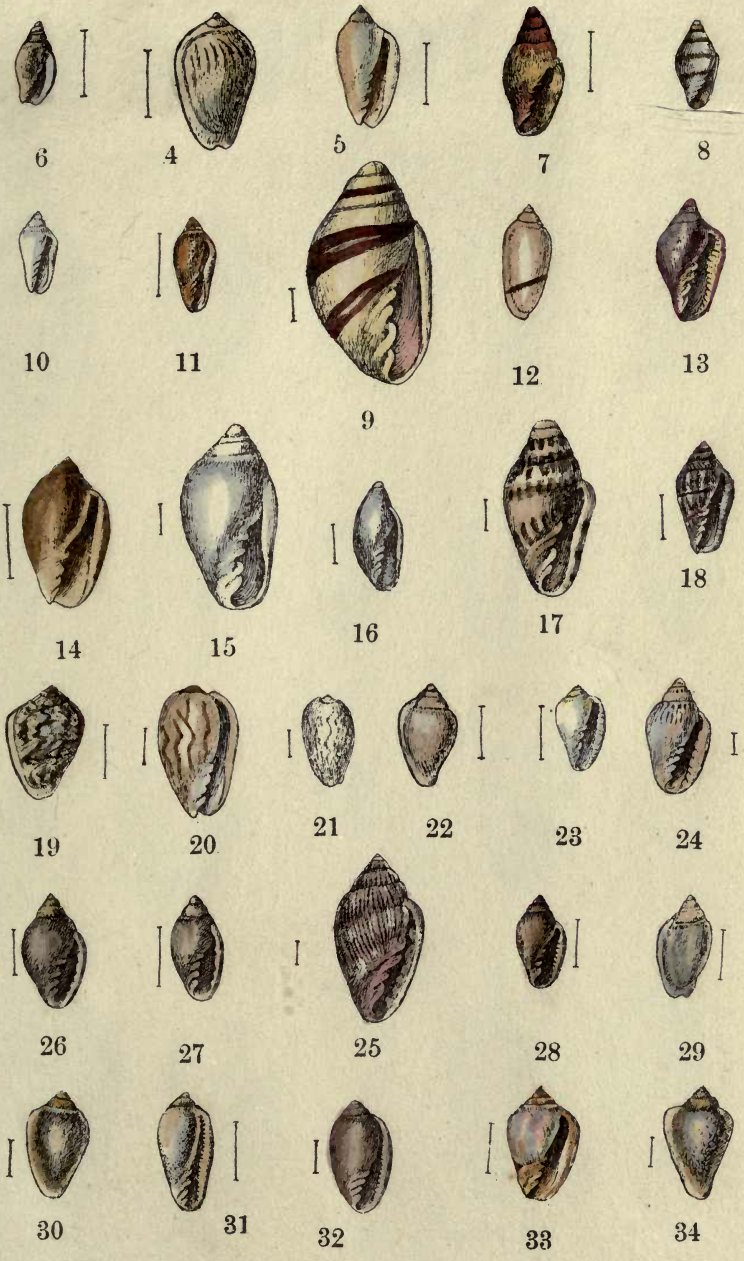
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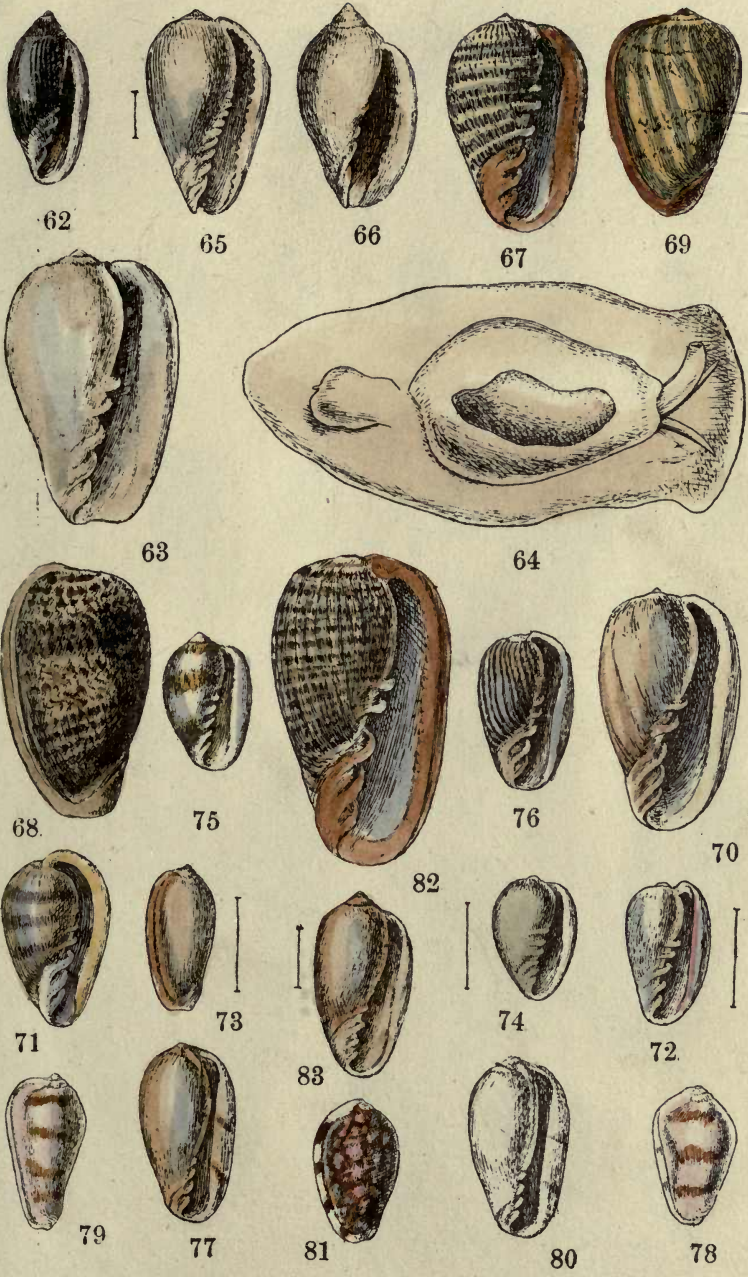
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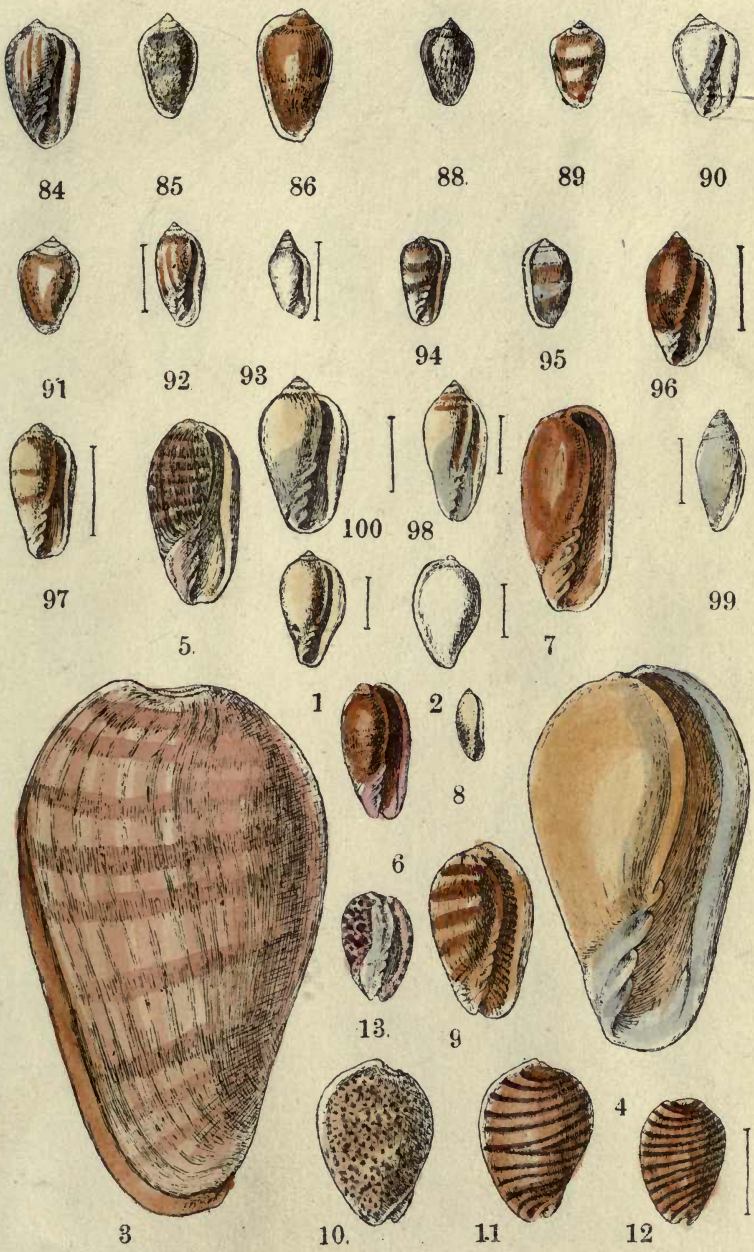
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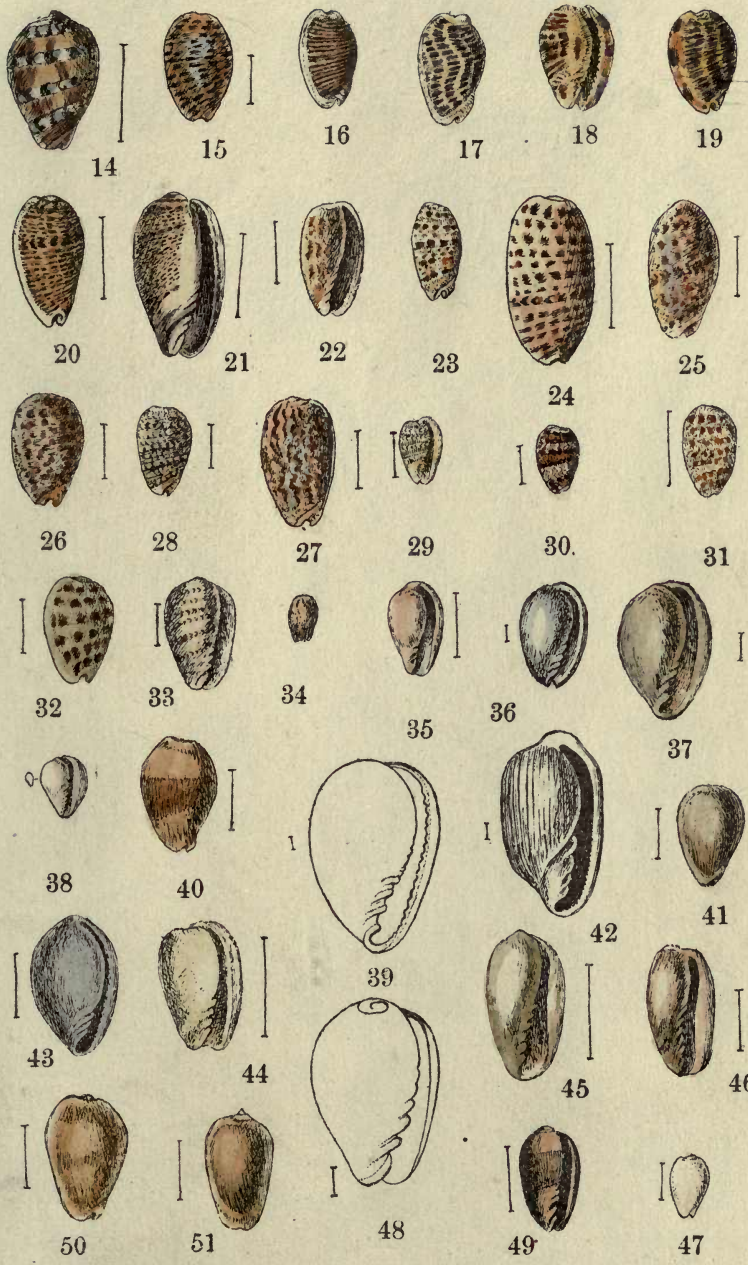
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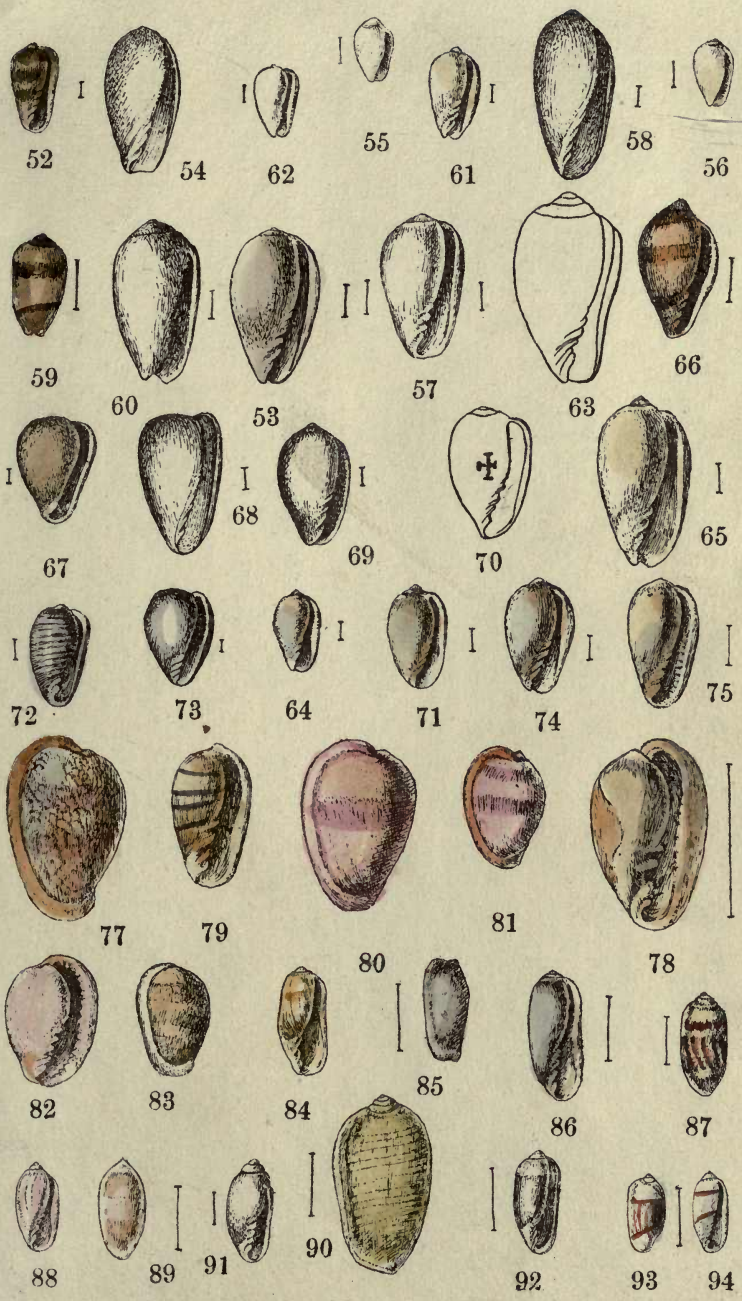
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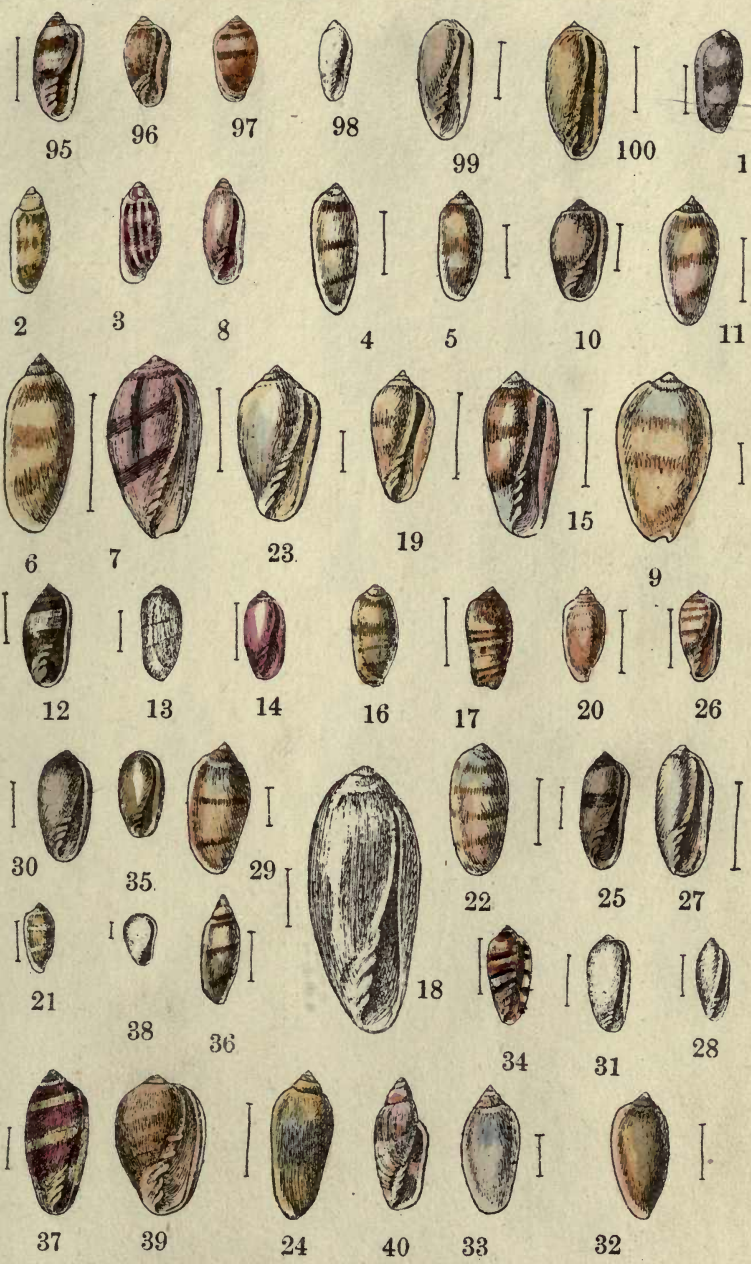
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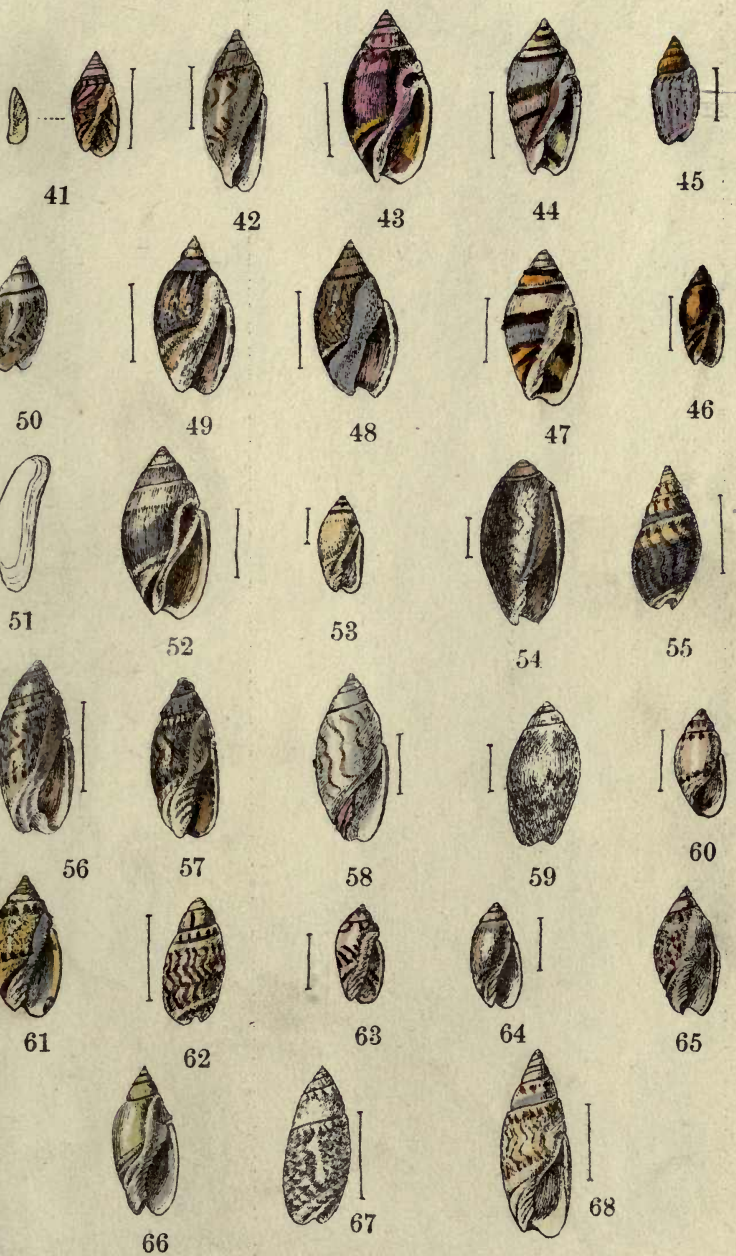
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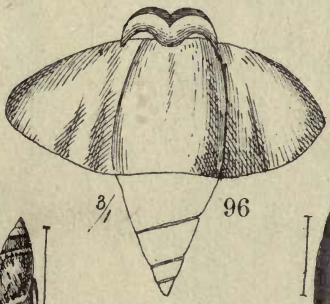

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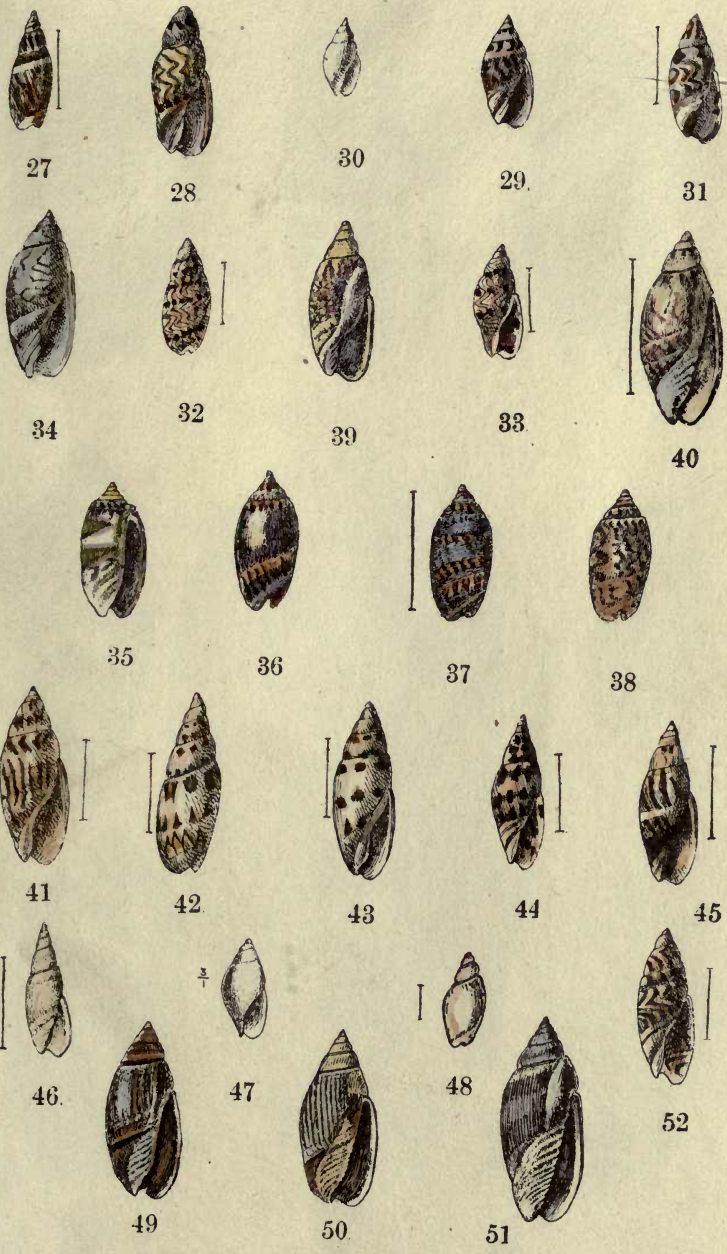
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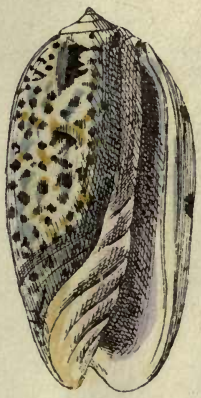

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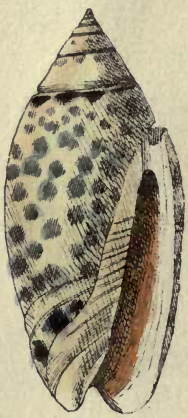

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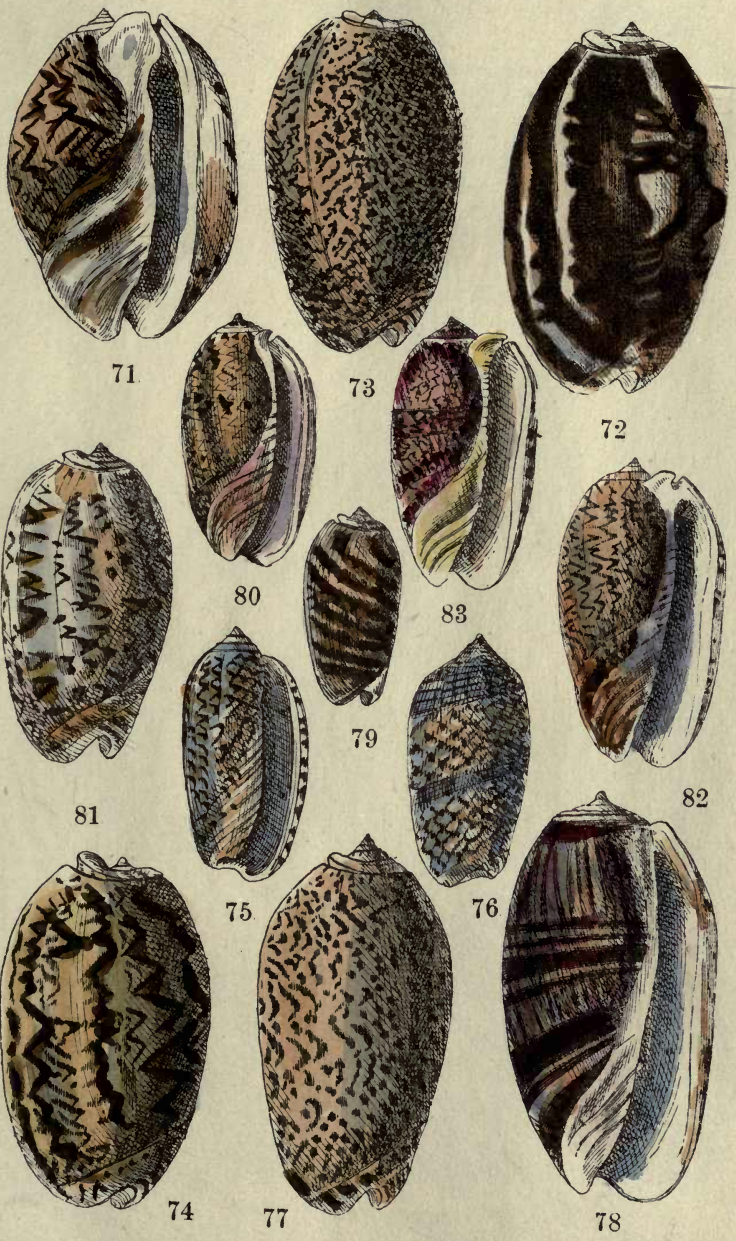
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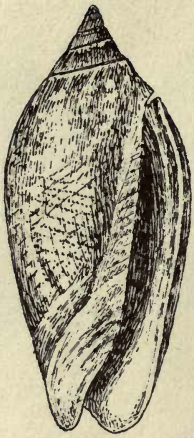

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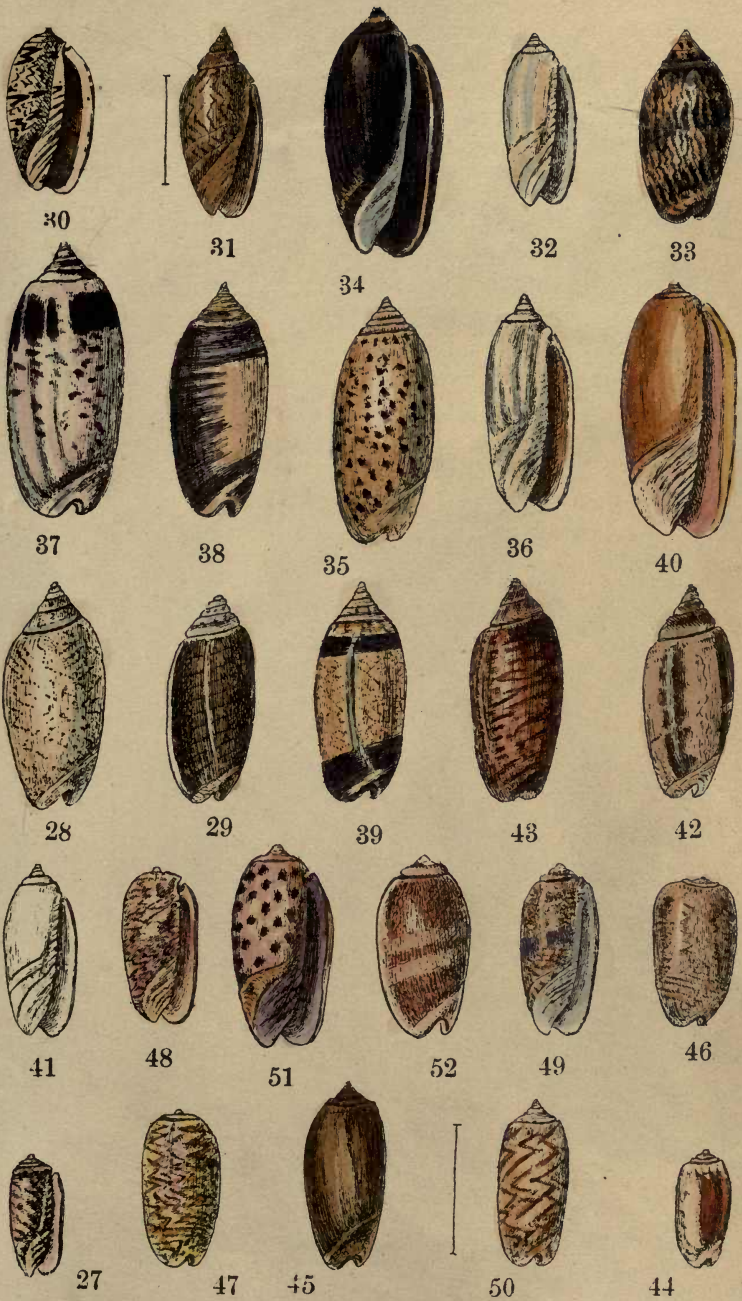
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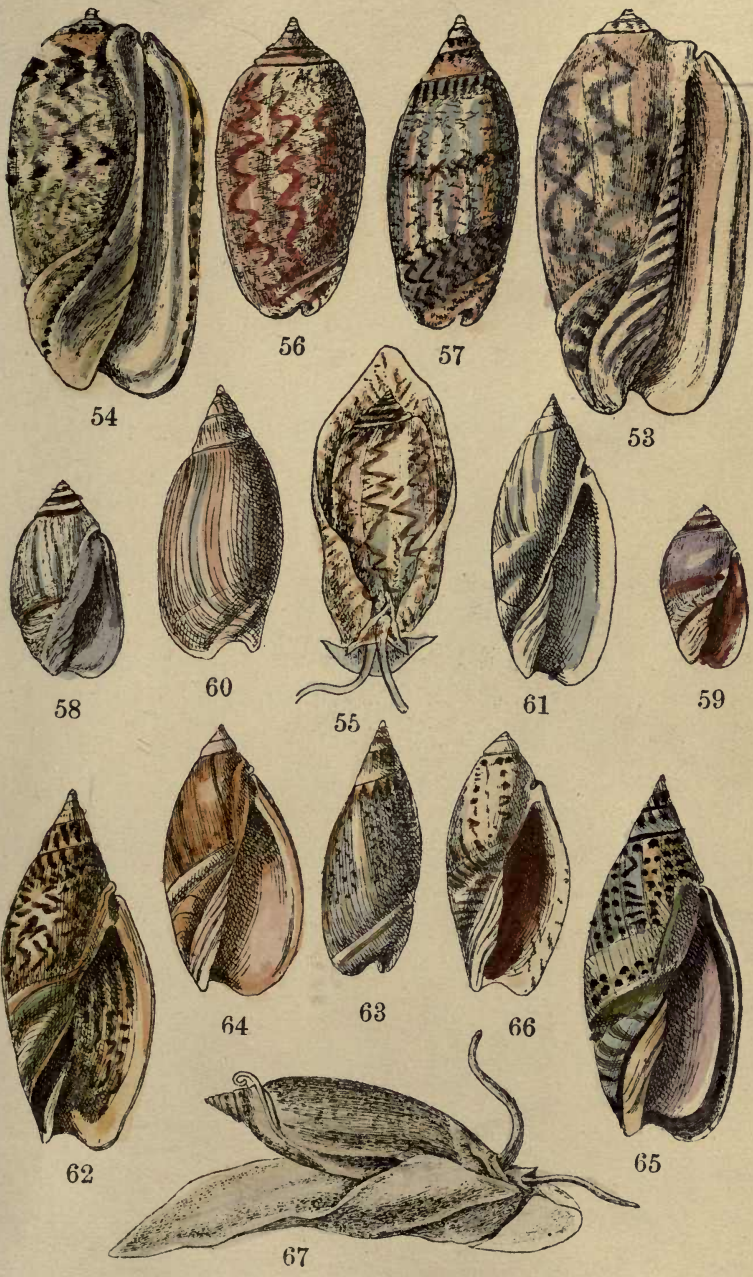
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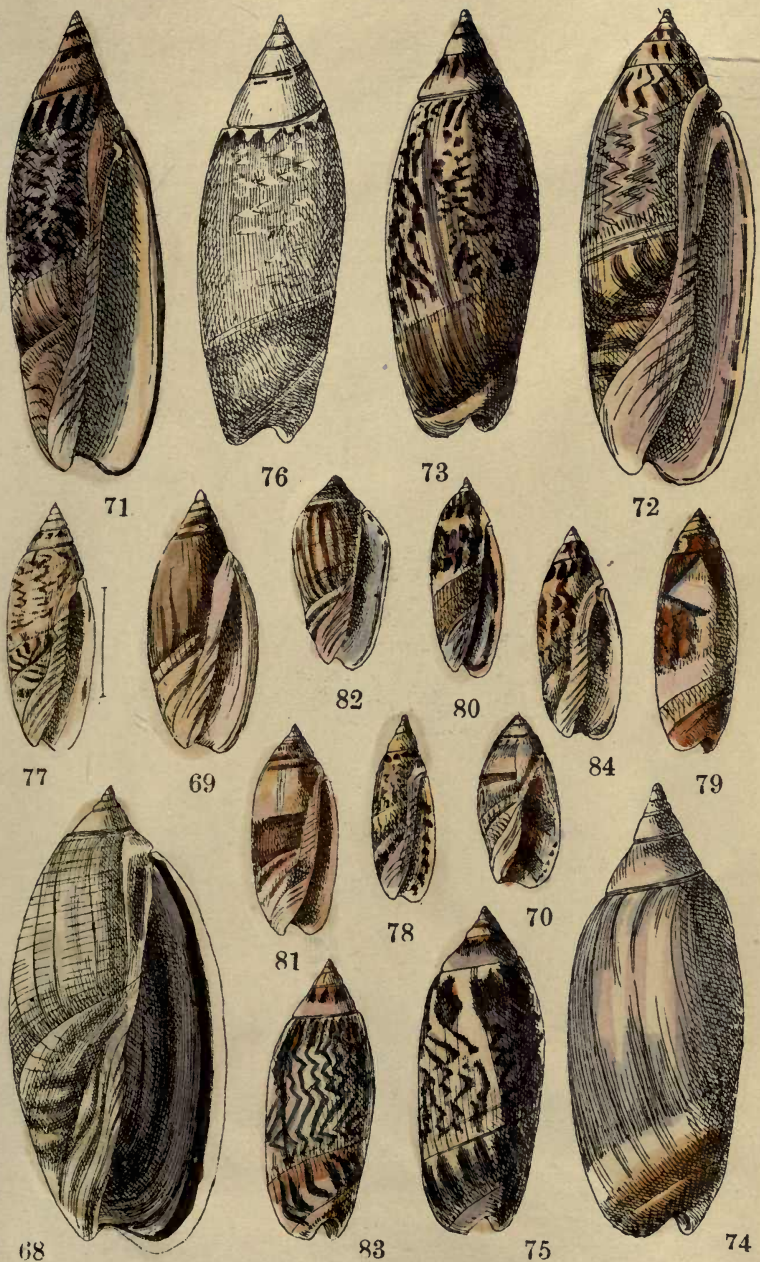
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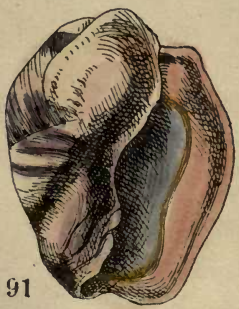
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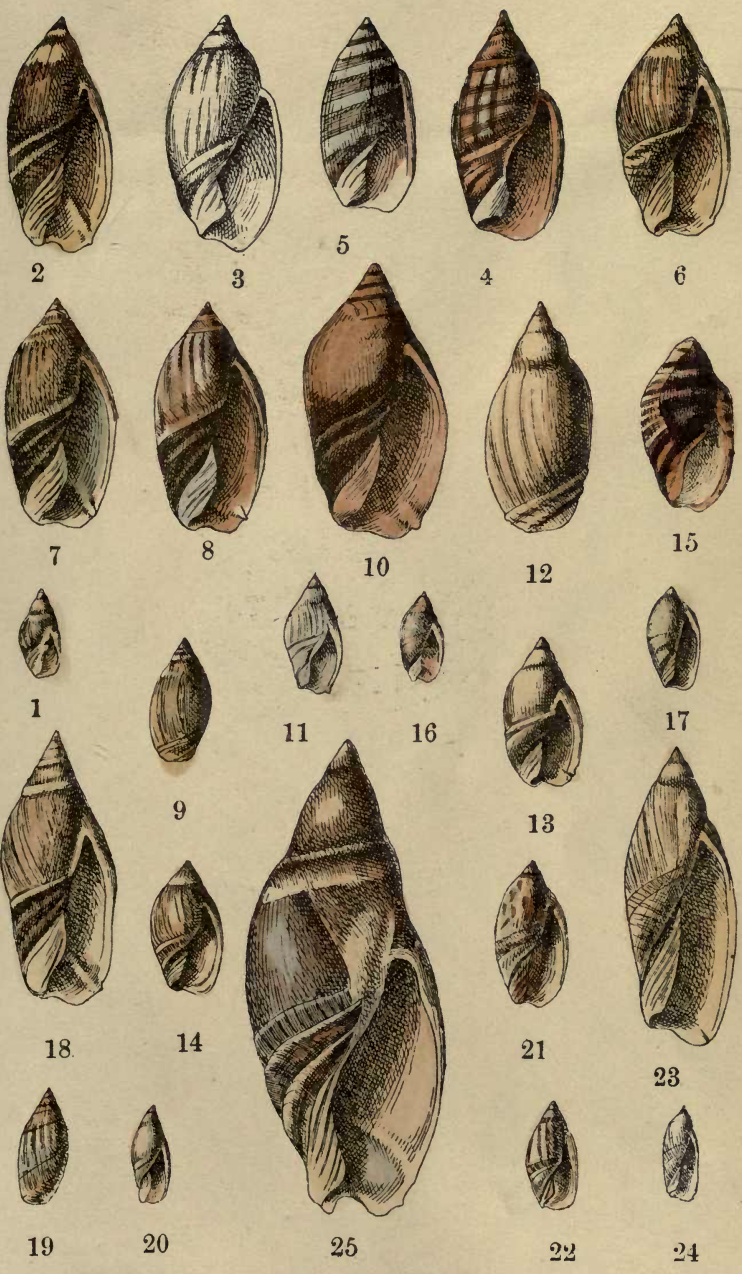
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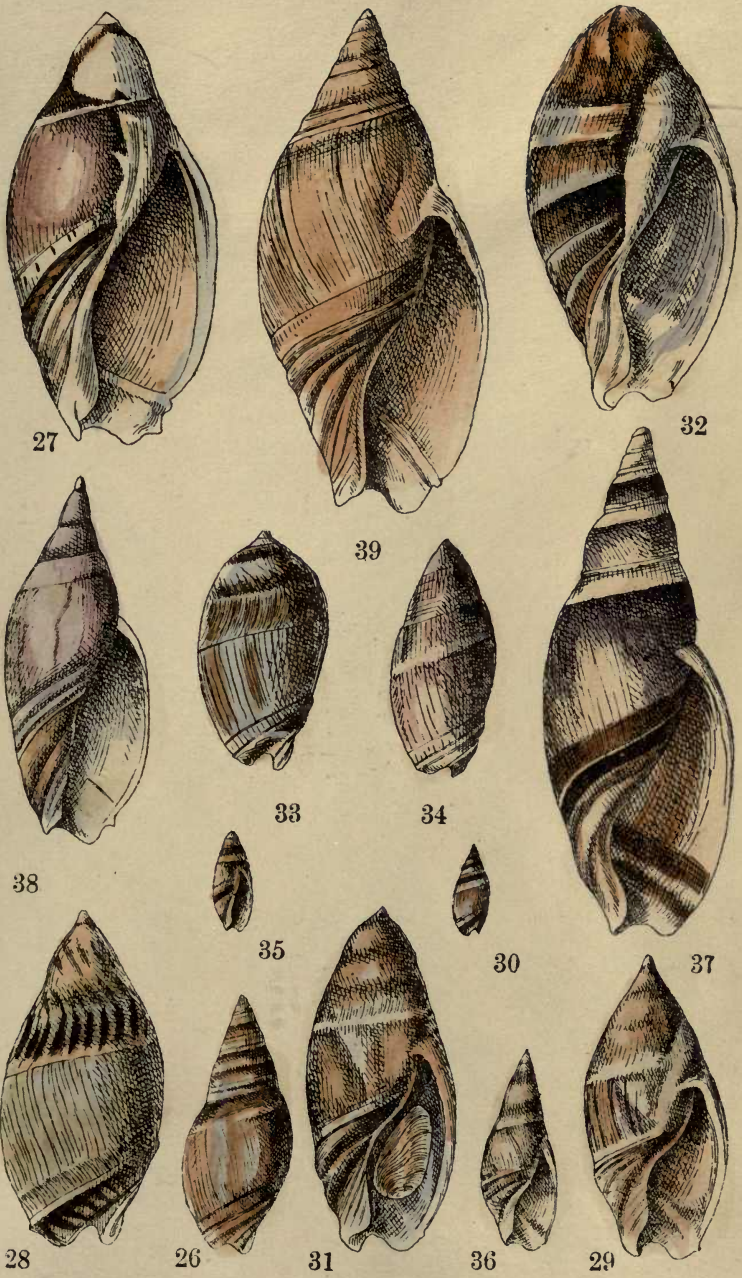
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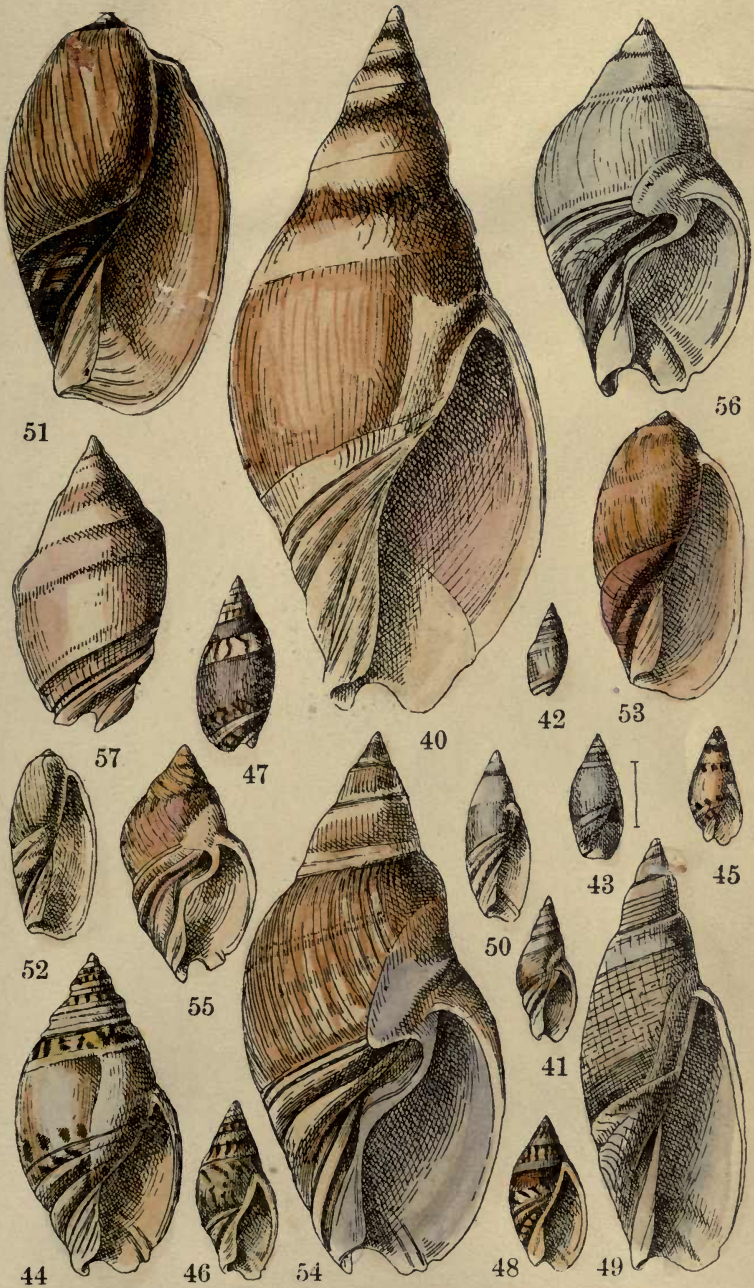
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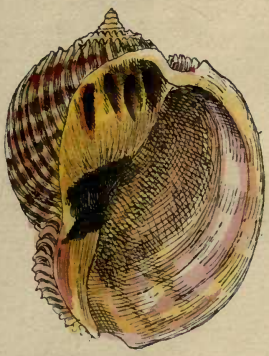

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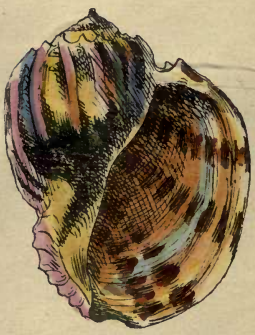

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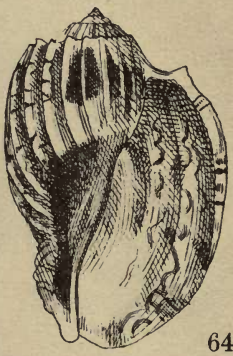

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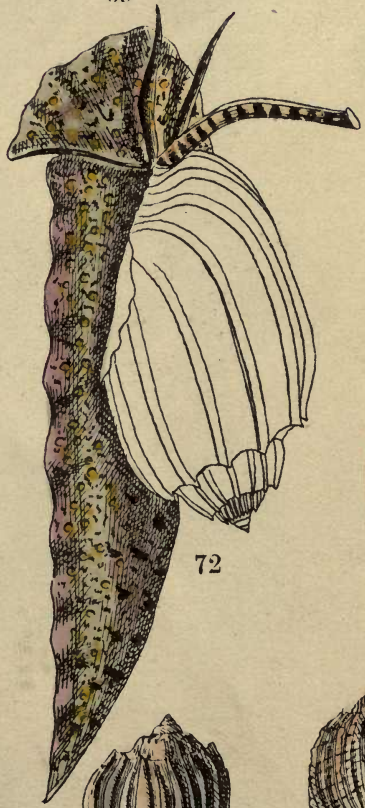

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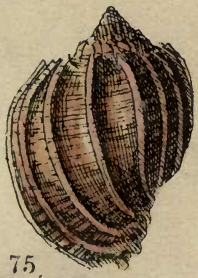

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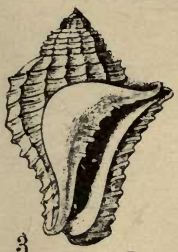
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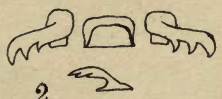
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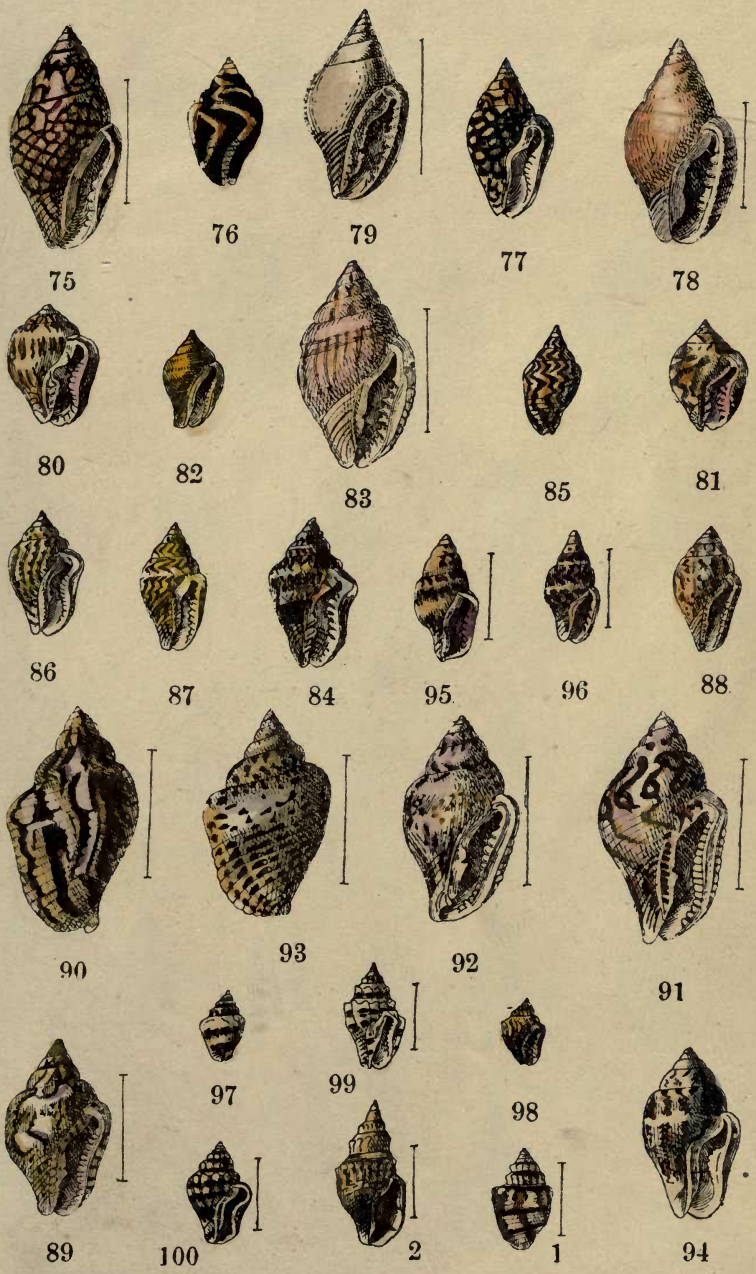
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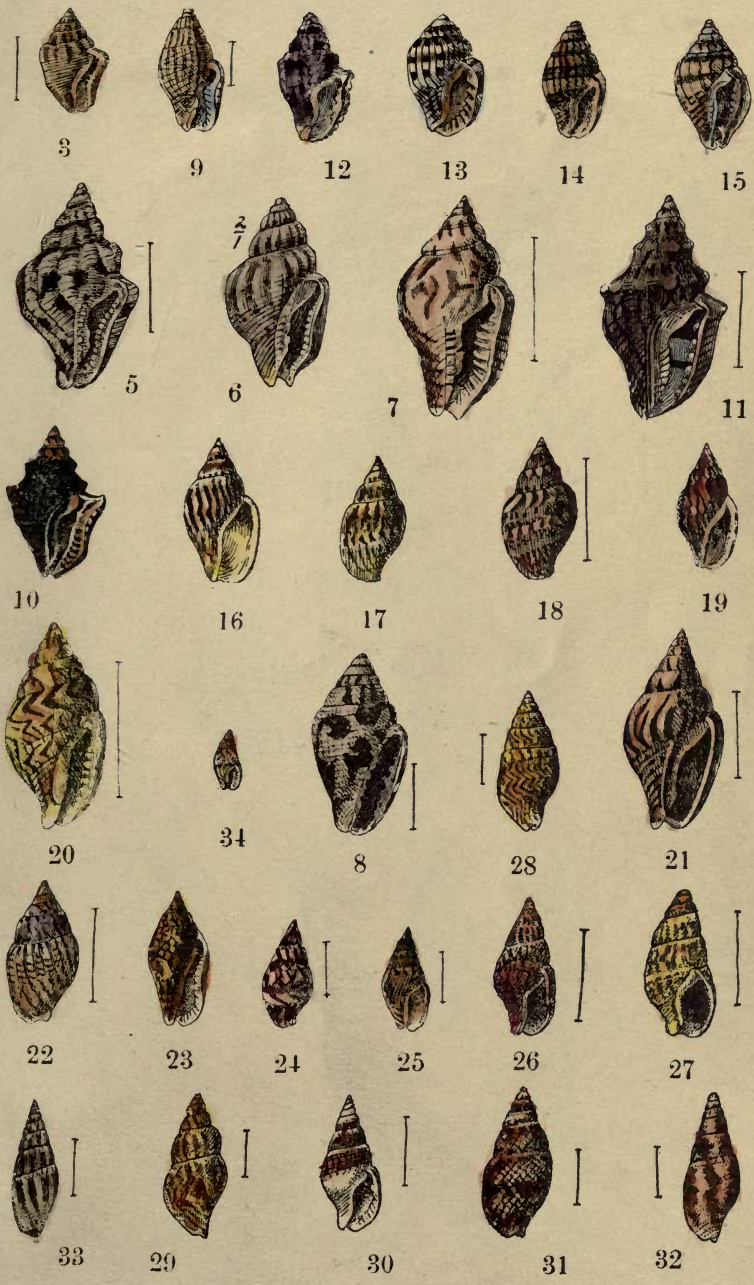
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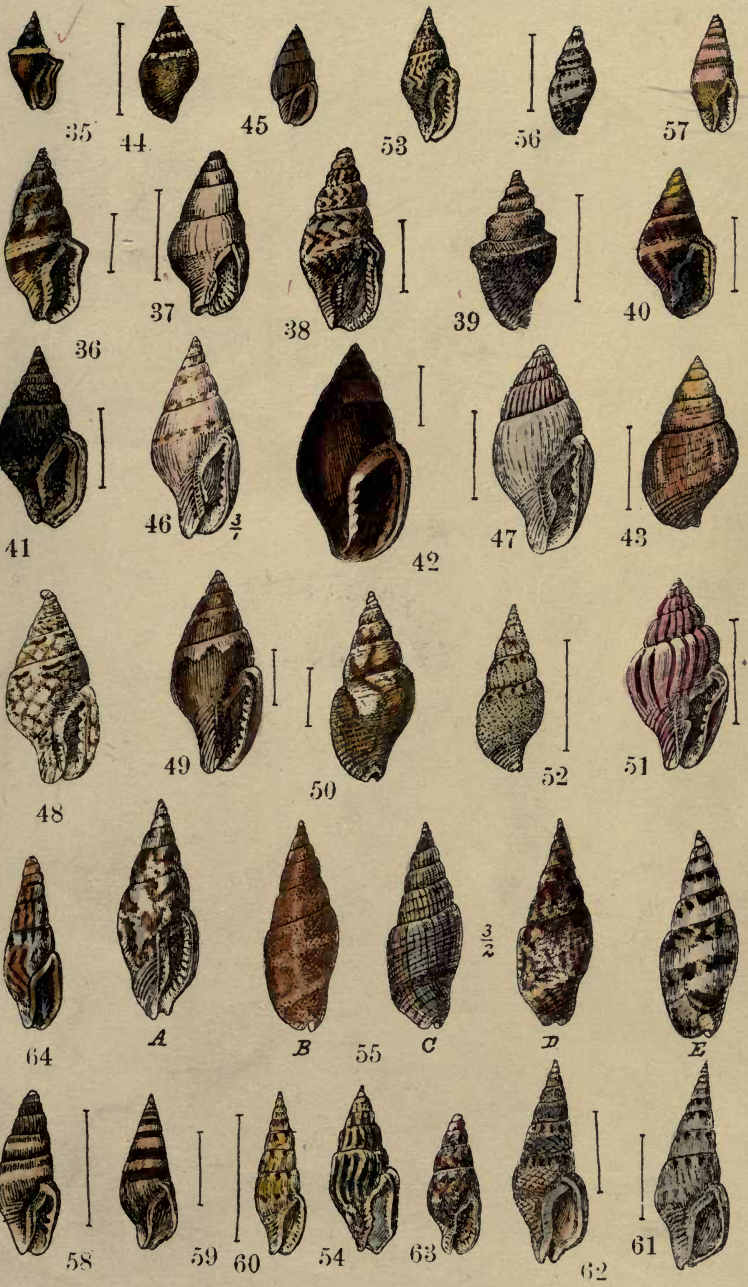
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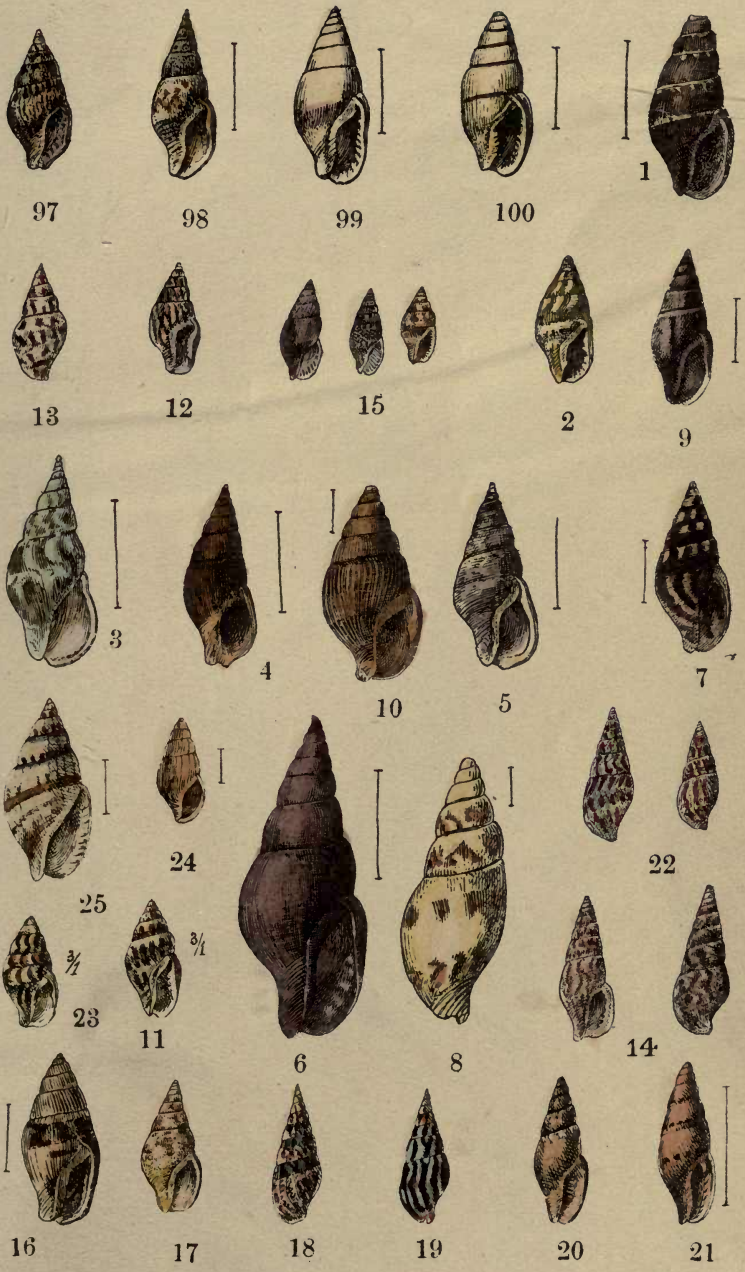
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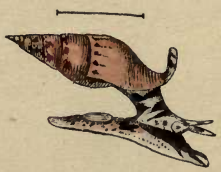
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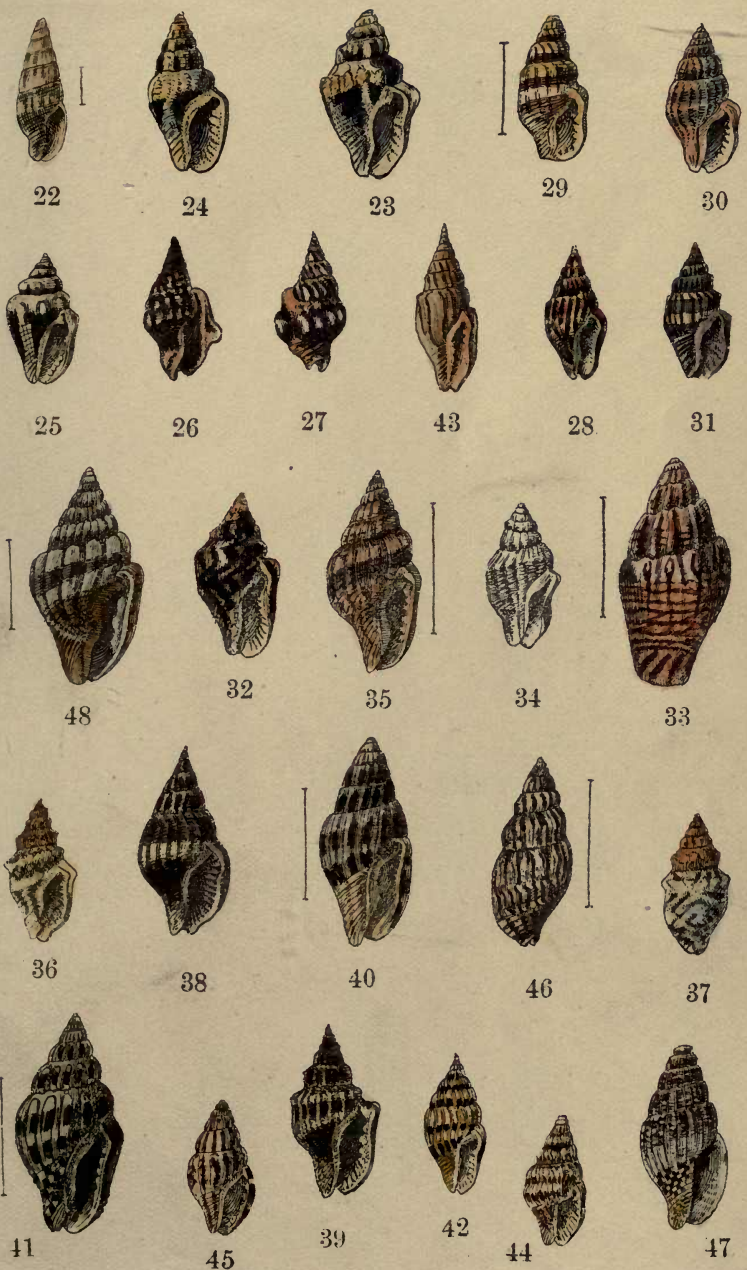
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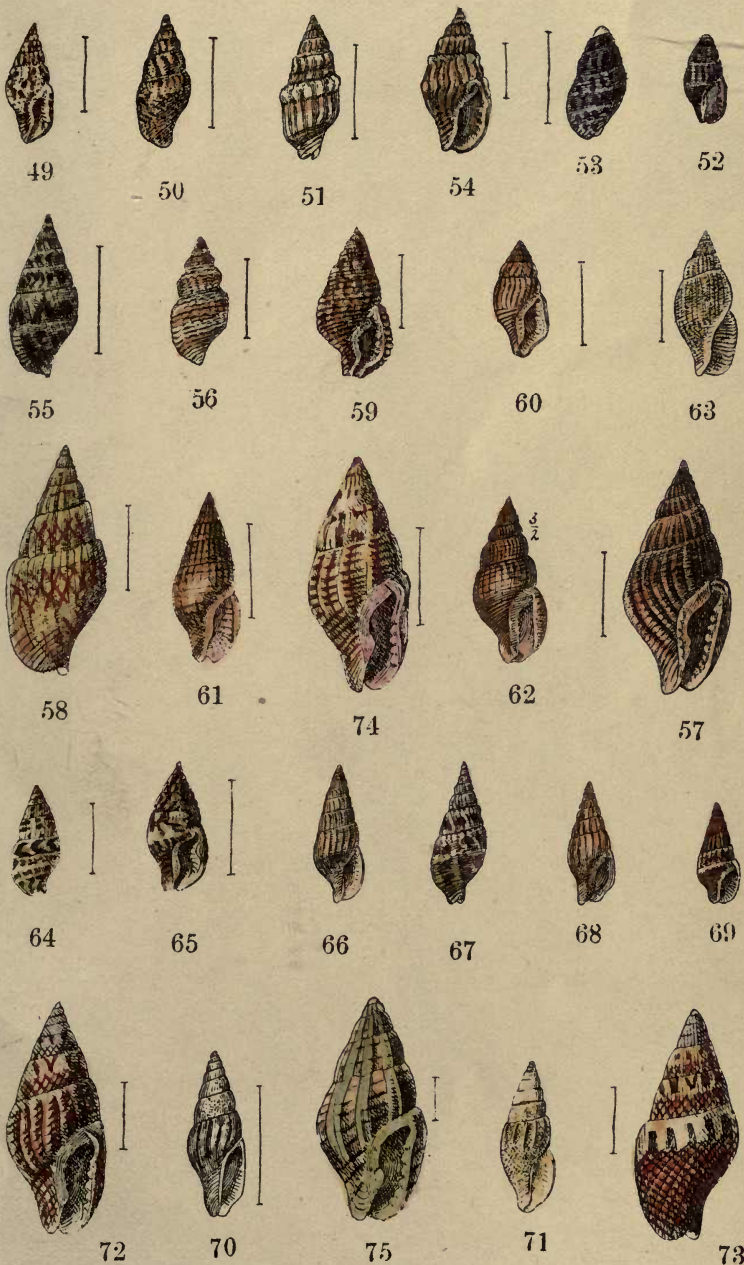
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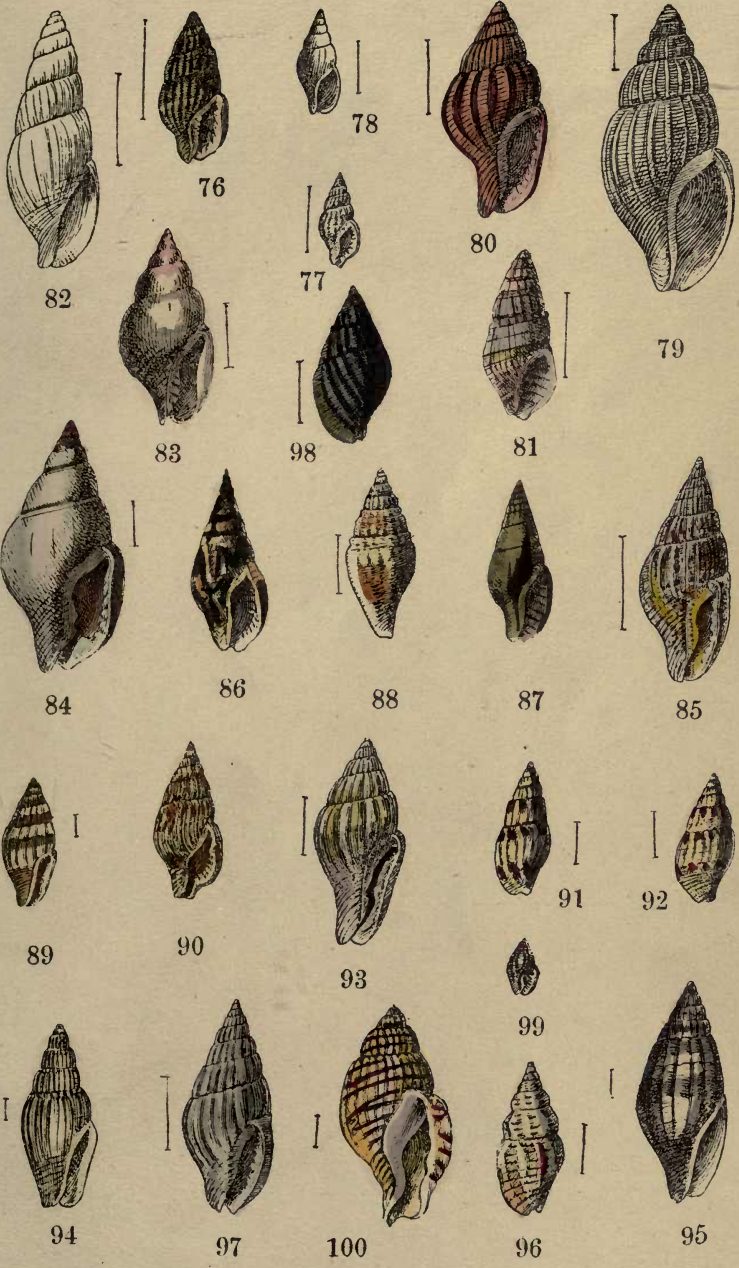
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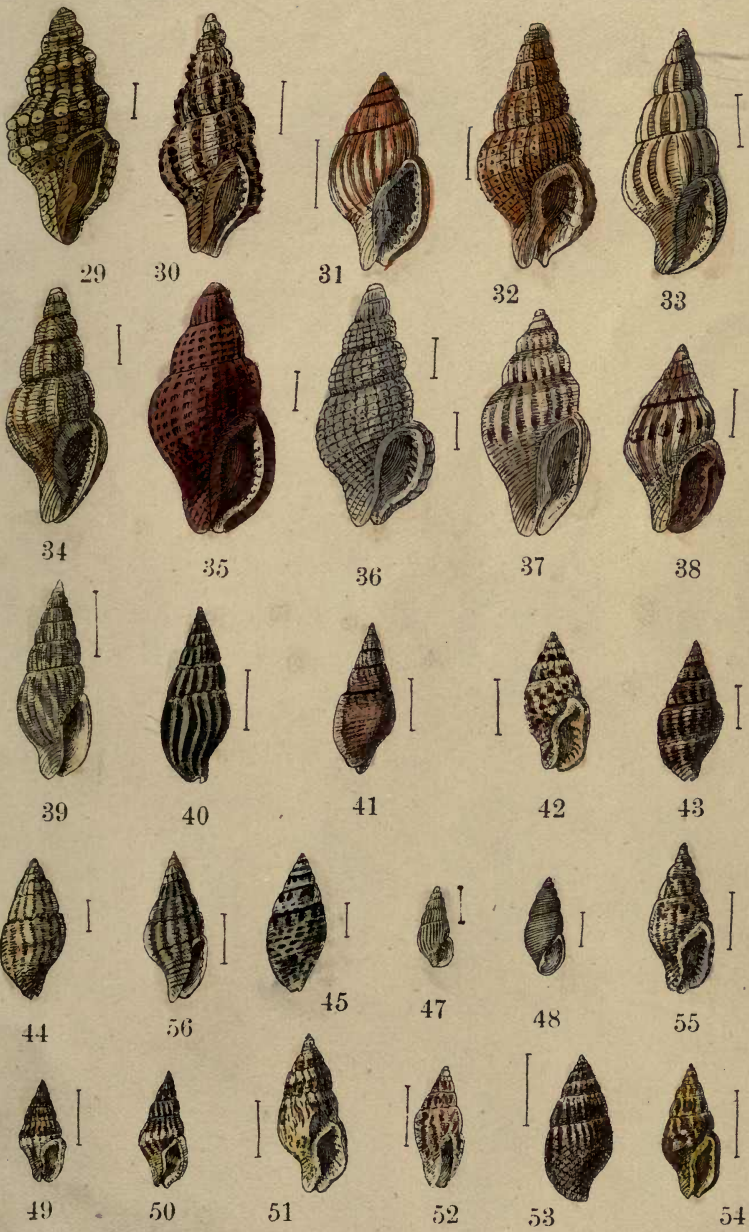
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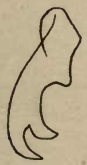

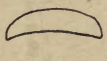

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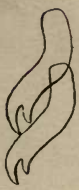

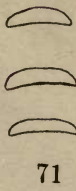

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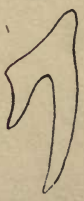

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